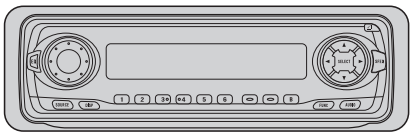
Service Manual

DEH-P4350/X1N/ES



ORDER NO.
CRT2576

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P4350 X1N/ES

DEH-P3350 X1N/ES

DEH-P3350B X1N/ES

COMPACT disc DIGITAL AUDIO

● **This service manual should be used together with the following manual(s):**

Model No.	Order No.	Mech. Module	Remarks
CX-958	CRT2423	S8.1	CD Mech. Module:Circuit Description, Mech. Description, Disassembly

CONTENTS

PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER EUROPE NV Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

K-ZZB. DEC. 2000 Printed in Japan

● **CD Player Service Precautions**

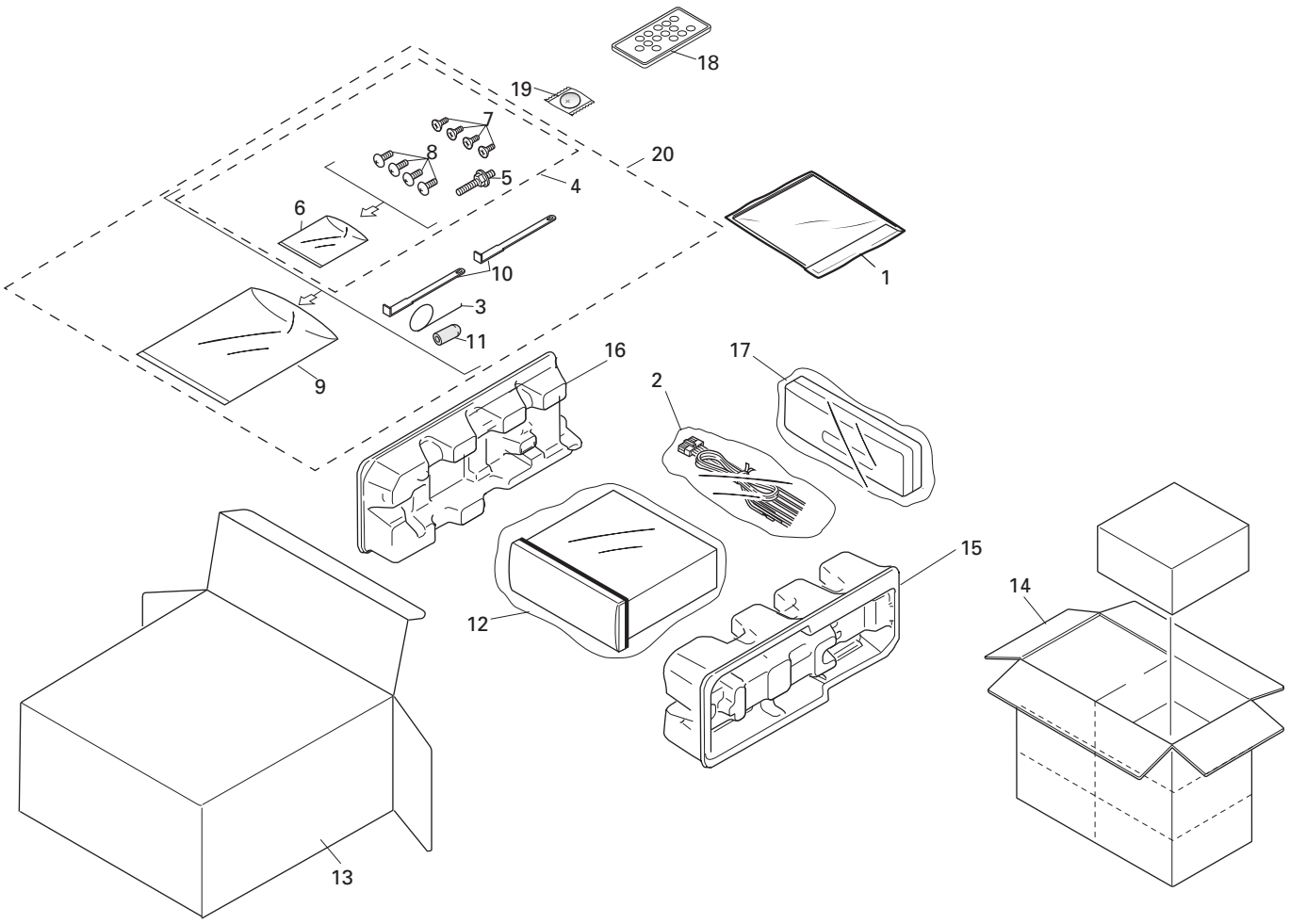
1. For pickup unit(CXX1285) handling, please refer to"Disassembly"(see page 49).
   During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 43).

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

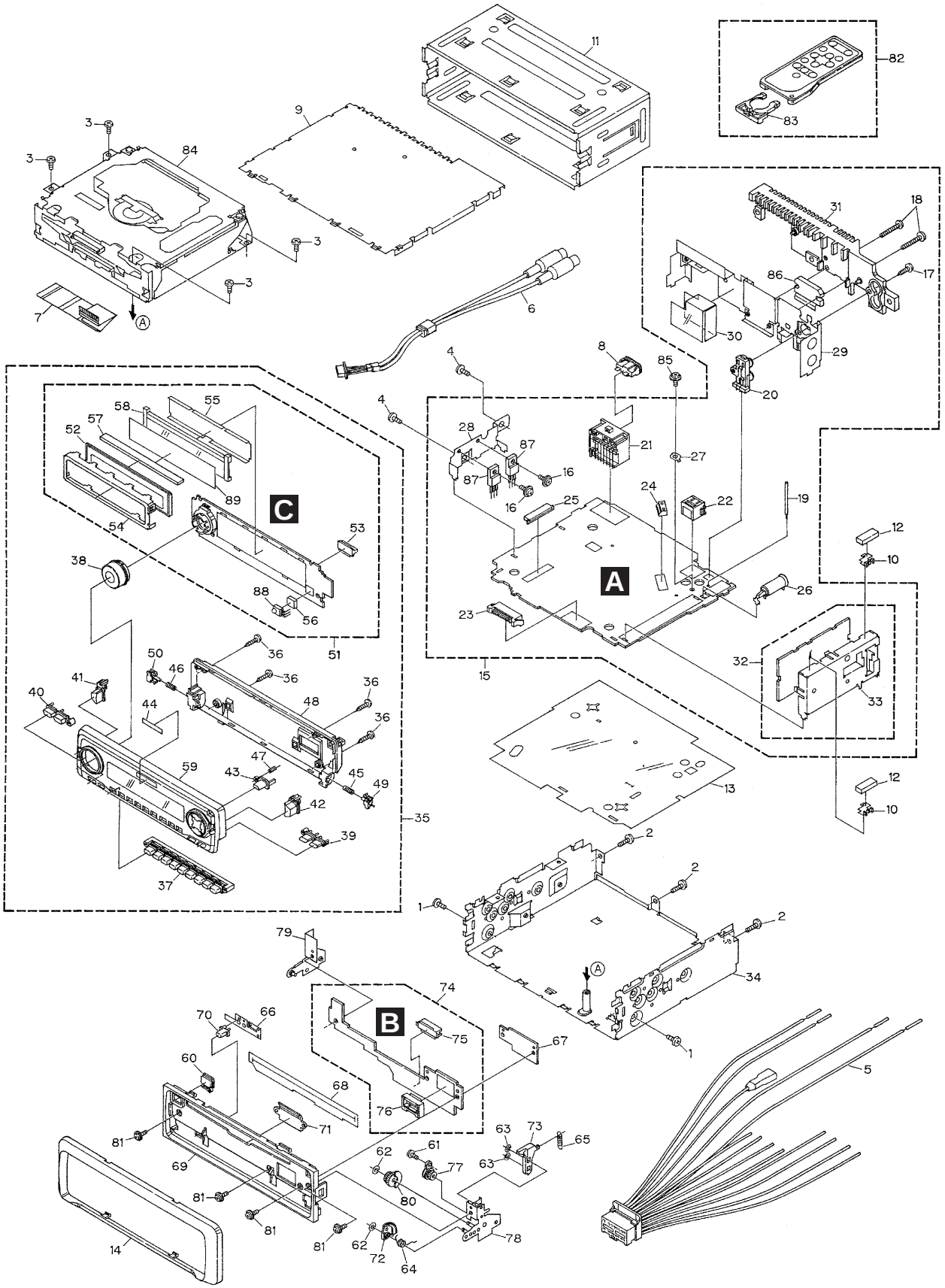
● PACKING SECTION PARTS LIST

Mark No.	Symbol and Description	Part No. DEH-P4350/X1N/ES	DEH-P3350/X1N/ES	DEH-P3350B/X1N/ES
	1-1 Owner's Manual	CRD3302	CRD3302	CRD3302
	1-2 Owner's Manual	CRD3303	CRD3303	CRD3303
*	1-3 Owner's Manual	CRB1630	CRB1630	Not used
	1-4 Installation Manual	CRD3312	CRD3312	CRD3312
	1-5 Polyethylene Bag	CEG1116	CEG1116	CEG1116
*	1-6 Caution Card	CRP1241	CRP1241	CRP1241
	2 Cord Assy	CDE6436	CDE6436	CDE6436
	3 Spring	CBH1650	CBH1650	CBH1650
*	4 Screw Assy	CEA2396	CEA2396	CEA2396
	5 Screw	CBA1002	CBA1002	CBA1002
*	6 Polyethylene Bag	CEG-127	CEG-127	CEG-127
	7 Screw	CRZ50P090FMC	CRZ50P090FMC	CRZ50P090FMC
	8 Screw	TRZ50P080FMC	TRZ50P080FMC	TRZ50P080FMC
*	9 Polyethylene Bag	CEG-158	CEG-158	CEG-158
	10 Handle	CNC5395	CNC5395	CNC5395
	11 Bush	CNV3930	CNV3930	CNV3930
	12 Polyethylene Bag	CEG-162	CEG-162	CEG-162
	13 Carton	CHG4262	CHG4268	CHG4269
	14 Contain Box	CHL4262	CHL4268	CHL4269
	15 Protector	CHP2251	CHP2251	CHP2251
	16 Protector	CHP2252	CHP2252	CHP2252
	17 Case Assy	CXB3520	CXB3520	CXB3520
	18 Remote Control Unit	CXB6797	Not used	Not used
*	19 Battery	CEX1065	Not used	Not used
*	20 Accessory Assy	CEA2395	CEA2395	CEA2395

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-P4350/X1N/ES	CRD3302	English, Spanish, Portuguese(B)
DEH-P3350/X1N/ES	CRD3303	Arabic
DEH-P3350B/X1N/ES	CRD3312	English, Spanish, Portuguese(B), Arabic
DEH-P4350/X1N/ES DEH-P3350/X1N/ES	CRB1630	Chinese

2.2 EXTERIOR



(1) EXTERIOR SECTION PARTS LIST

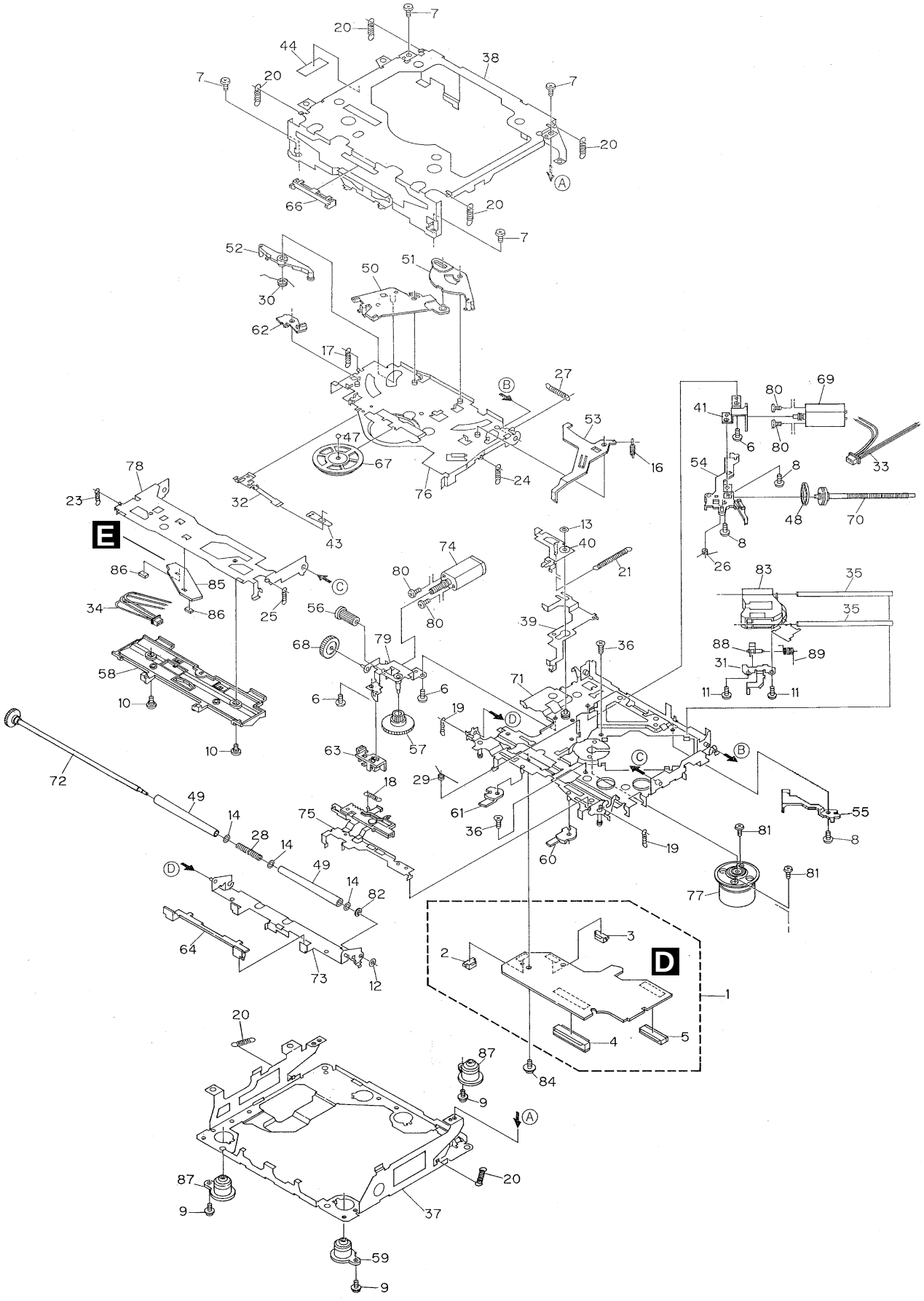
Mark	No.	Description	Part No.
	1	Screw	BMZ30P040FZK
	2	Screw	BMZ30P100FMC
	3	Screw	BSZ26P060FMC
	4	Screw	BSZ30P060FMC
	5	Cord Assy	CDE6436
	6	Cord Assy	See Contrast table(2)
	7	Cable	CDE6444
	8	Fuse(10A)	CEK1136
	9	Case	CNB2686
	10	Holder	CNC5704
	11	Holder	CNC8659
	12	Cushion	CNM4870
	13	Insulator	CNM6948
	14	Panel	CNS6332
	15	Tuner Amp Unit	See Contrast table(2)
	16	Screw	ASZ26P060FMC
	17	Screw	BPZ26P100FMC
	18	Screw	BSZ26P160FMC
	19	Clamper	See Contrast table(2)
	20	Pin Jack(CN351)	CKB1035
	21	Plug(CN901)	CKM1330
	22	Connector(CN701)	CKS3408
	23	Plug(CN750)	CKS3537
	24	Connector(CN331)	See Contrast table(2)
	25	Connector(CN501)	CKS4398
	26	Antenna Jack(CN402)	CKX1056
	27	Holder(CN403)	CNC5399
	28	Holder	CNC8615
	29	Holder	See Contrast table(2)
	30	Insulator	CNM6949
	31	Heat Sink	CNR1583
	32	FM/AM Tuner Unit	CWE1563
	33	Holder	CNC8815
	34	Chassis Unit	CXB6100
	35	Detach Grille Assy	See Contrast table(2)
	36	Screw	BPZ20P100FZK
	37	Button(1-6)	CAC6773
	38	Knob(VOLUME)	CAC6775
	39	Button(FUNC/AUDIO)	CAC6776
	40	Button(SOURCE/DISP)	CAC6777
	41	Button(EQ)	CAC6778
	42	Button(SFEQ)	CAC6779
	43	Button(OPEN)	CAC6780
*	44	Badge	CAH1754
	45	Spring	CBH2430
	46	Spring	CBH2431
	47	Spring	CBH2491
	48	Cover	CNS6282
	49	Holder	CNV6505
	50	Holder	CNV6506
	51	Keyboard Unit	See Contrast table(2)
	52	LCD	See Contrast table(2)
	53	Connector(CN1901)	CKS4205
	54	Holder	CNC9053
	55	Sheet	CNM6969
	56	Cushion	See Contrast table(2)
	57	Connector	CNV6440
	58	Lighting Conductor	CNV6441
	59	Sub Grille Assy	See Contrast table(2)
	60	Button(EJECT)	CAC6839
	61	Screw(M2x2)	CBA1176
	62	Washer	CBF1038
	63	Washer	CBF1039
	64	Spring	CBH2428
	65	Spring	CBH2429
	66	Spring	CBL1512
	67	Holder	CNC9096
	68	Cover	CNM6854
	69	Panel	CNS6278
	70	Pin	CNV6486
	71	Lighting Conductor	CNV6487
	72	Gear	CNV6507
	73	Arm	CNV6508
	74	Panel Unit	CWM7375
	75	Socket(CN1950)	CKS3550
	76	Connector(CN1951)	CKS4206
	77	Damper Unit	CXB5070
	78	Holder Unit	CXB6356
	79	Holder Unit	CXB6357
	80	Clutch Unit	CXB6358
	81	Screw	IMS20P045FZK
	82	Remote Control Unit	See Contrast table(2)
	83	Cover	See Contrast table(2)
	84	CD Mechanism Module(S8.1)	CXK5201
	85	Screw	ISS26P055FUC
	86	IC(IC361)	PAL006A
	87	Transistor(Q510,Q910)	2SD2396
	88	IC(IC1902)	See Contrast table(2)
	89	Film	See Contrast table(2)

(2) CONTRAST TABLE

DEH-P4350/X1N/ES, DEH-P3350/X1N/ES and DEH-P3350B/X1N/ES are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.		
		DEH-P4350/X1N/ES	DEH-P3350/X1N/ES	DEH-P3350B/X1N/ES
6	Cord Assy	CDE6494	Not used	Not used
15	Tuner Amp Unit	CWM7376	CWM7383	CWM7676
19	Clamper	CEF1007	Not used	Not used
24	Connector(CN331)	CKS3598	Not used	Not used
29	Holder	CNC9470	CNC9472	CNC9472
35	Detach Grille Assy	CXB6288	CXB6295	CXB7019
51	Keyboard Unit	CWM7398	CWM7405	CWM7681
52	LCD	CAW1626	CAW1628	CAW1679
56	Cushion	CNM6984	Not used	Not used
59	Sub Grille Assy	CXB7155	CXB7163	CXB7162
82	Remote Control Unit	CXB6797	Not used	Not used
83	Cover	CNS6439	Not used	Not used
88	IC(IC1902)	SBX8035-H	Not used	Not used
89	Film	Not used	Not used	CNM6983

2.3 CD MECHANISM MODULE

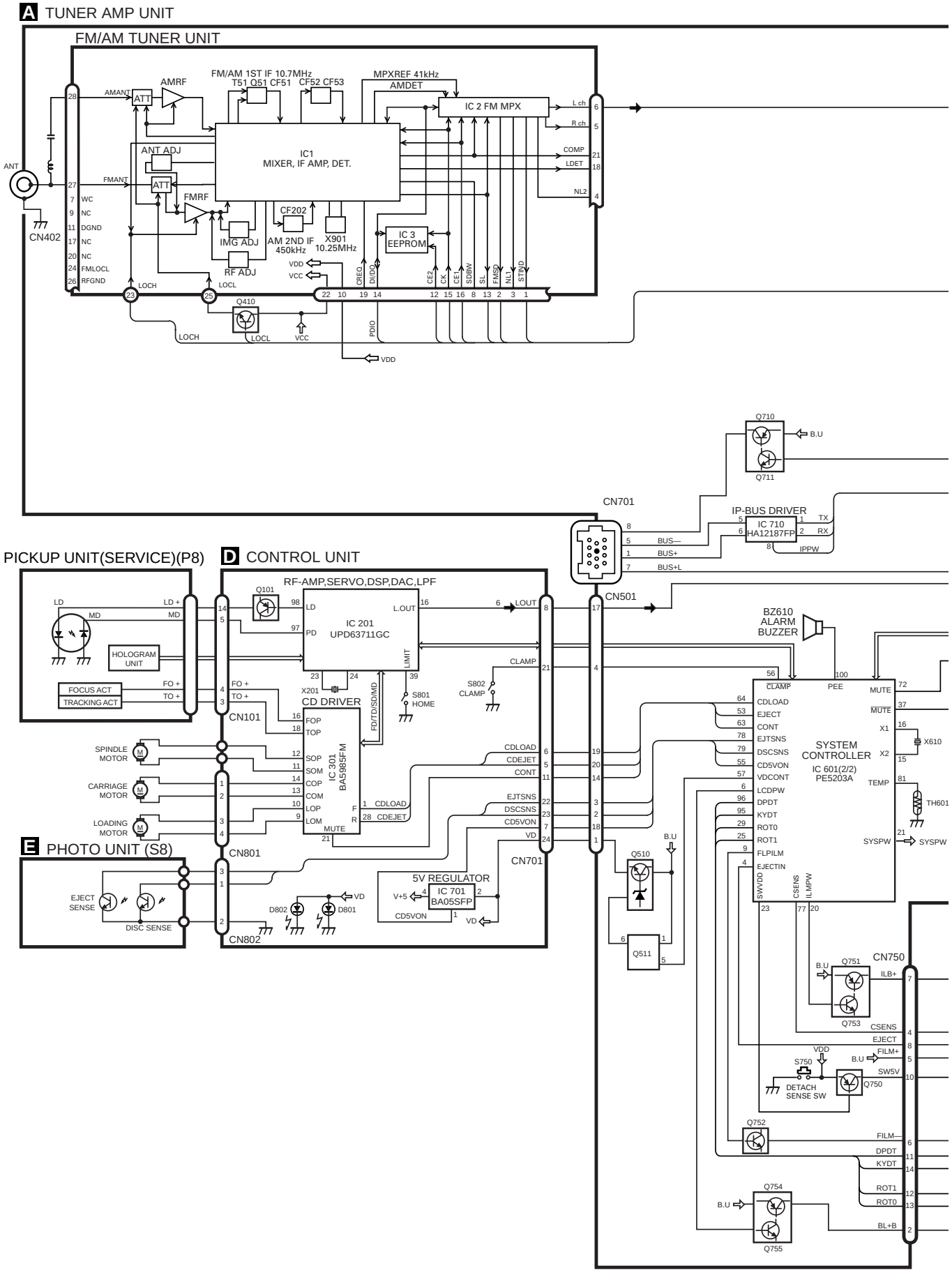


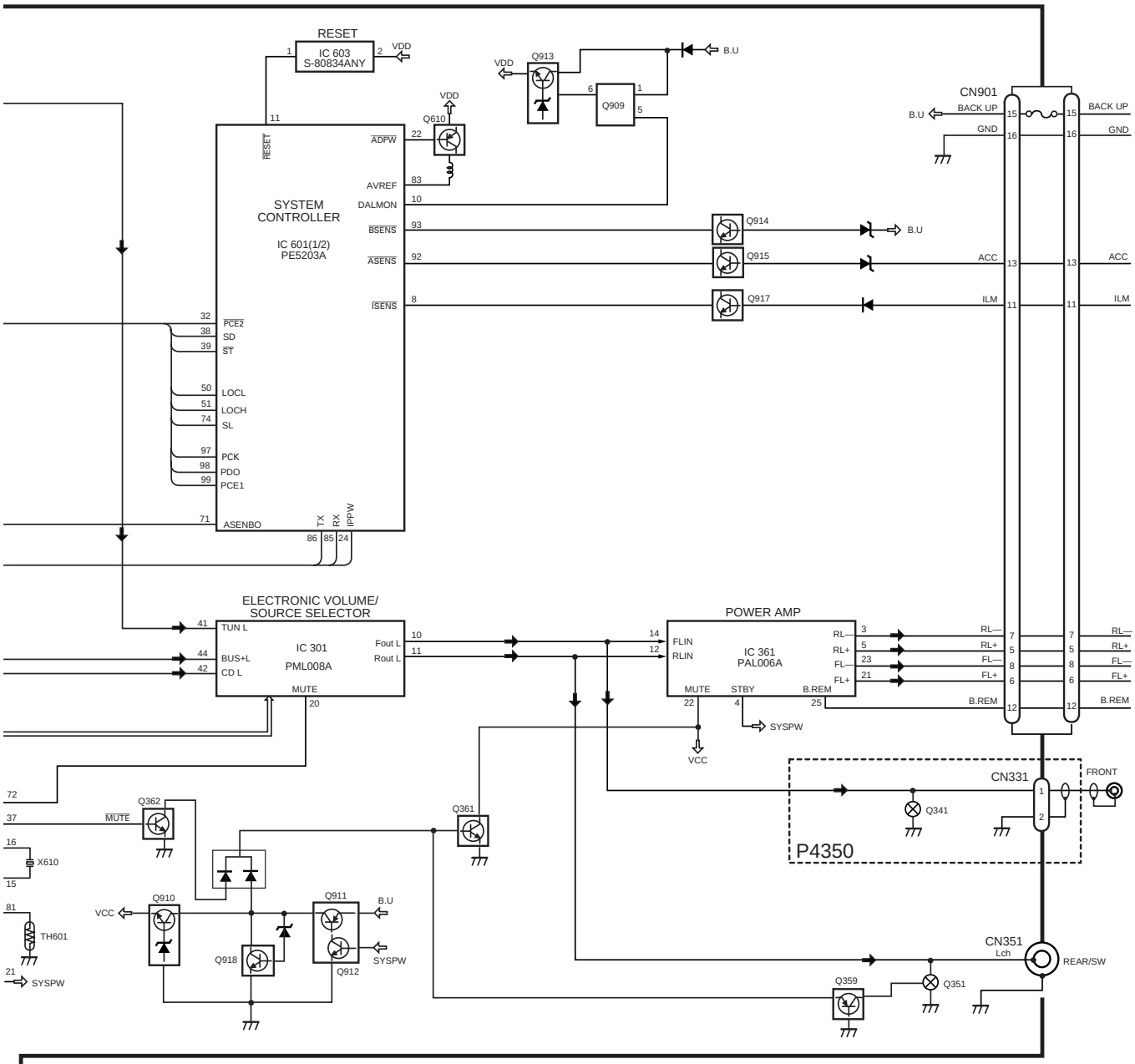
● CD MECHANISM MODULE SECTION PARTS LIST

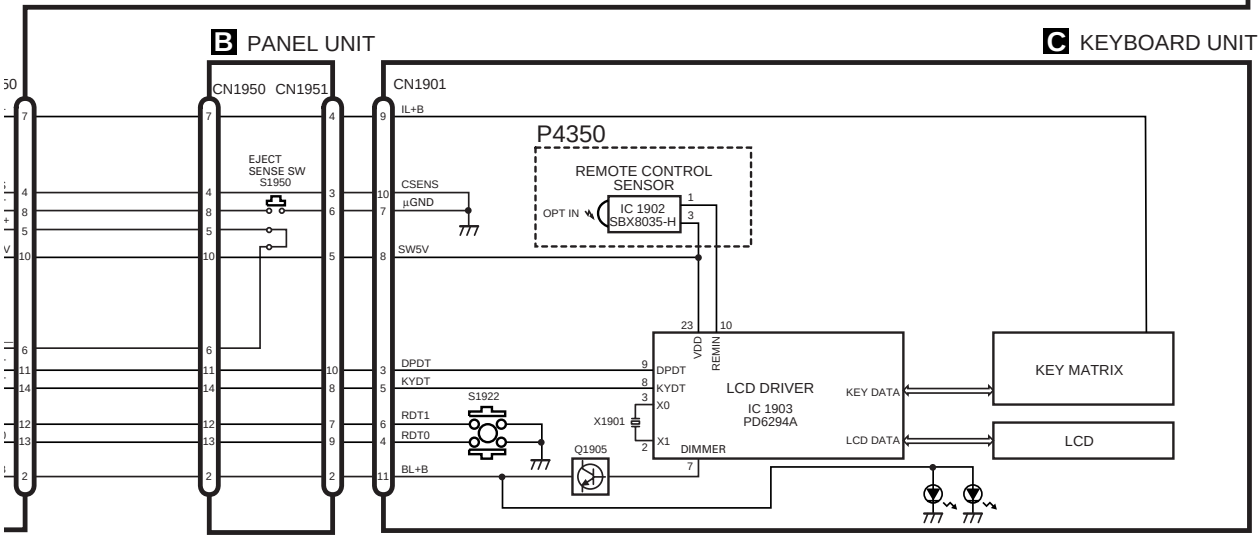
Mark	No.	Description	Part No.
	1	Control Unit	CWX2411
	2	Connector(CN802)	CKS2192
	3	Connector(CN801)	CKS2193
	4	Connector(CN701)	CKS2773
	5	Connector(CN101)	CKS3486
	6	Screw	BMZ20P030FMC
	7	Screw	BSZ20P040FMC
	8	Screw(M2x3)	CBA1077
	9	Screw(M2x5)	EBA1028
	10	Screw	CBA1243
	11	Screw(M2x4)	CBA1362
	12	Washer	CBF1037
	13	Washer	CBF1038
	14	Washer	CBF1060
	15	•••••	
	16	Spring	CBH2079
	17	Spring	CBH2117
	18	Spring	CBH2314
	19	Spring	CBH2110
	20	Spring	CBH2282
	21	Spring	CBH2318
	22	•••••	
	23	Spring	CBH2324
	24	Spring	CBH2118
	25	Spring	CBH2161
	26	Spring	CBH2163
	27	Spring	CBH2189
	28	Spring	CBH2377
	29	Spring	CBH2260
	30	Spring	CBH2262
	31	Bracket	CNC8568
	32	Spring	CBL1531
	33	Connector	CDE5531
	34	Connector	CDE5532
	35	Shaft	CLA3894
	36	Screw(M2.6x6)	CBA1458
	37	Frame	CNC8565
	38	Frame	CNC8749
	39	Lever	CNC9265
	40	Arm	CNC8663
	41	Bracket	CNC8567
	42	•••••	
	43	Spacer	CNM3315
	44	Sheet	CNM6659
	45	•••••	
	46	•••••	
	47	Ball	CNR1189
	48	Belt	CNT1086
	49	Roller	CNV4509
	50	Arm	CNV6037
	51	Arm	CNV5247
	52	Arm	CNV5248
	53	Arm	CNV5249
	54	Guide	CNV5254
	55	Guide	CNV5255
	56	Gear	CNV5257
	57	Gear	CNV5256
	58	Guide	CNV6272
	59	Damper	CNV6010
	60	Arm	CNV6096
	61	Arm	CNV6031
	62	Arm	CNV6211
	63	Guide	CNV6012
	64	Guide	CNV5510
	65	•••••	
	66	Guide	CNV5751
	67	Clamper	CNV6013
	68	Gear	CNV5813
	69	Motor Unit(M1)	CXB2190
	70	Screw Unit	CXB5892
	71	Chassis Unit	CXB4797
	72	Gear Unit	CXB4728
	73	Arm Unit	CXB5753
	74	Motor Unit(M2)	CXB2195
	75	Lever Unit	CXB4730
	76	Arm Unit	CXB4731
	77	Motor Unit(M3)	CXB2562
	78	Arm Unit	CXB4732
	79	Bracket Unit	CXB4795
	80	Screw	JFZ20P025FMC
	81	Screw	JGZ17P025FZK
	82	Washer	YE20FUC
	83	Pickup Unit(Service)(P8)	CXX1285
	84	Screw	IMS26P030FMC
*	85	PCB	CNX2982
	86	Photo-transistor(Q1, 2)	CPT230SX-TU
	87	Damper	CNV6011
	88	Rack	CNV6014
	89	Spring	CBH2315

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

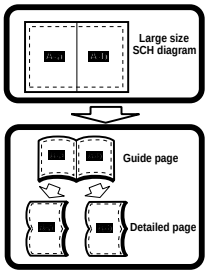


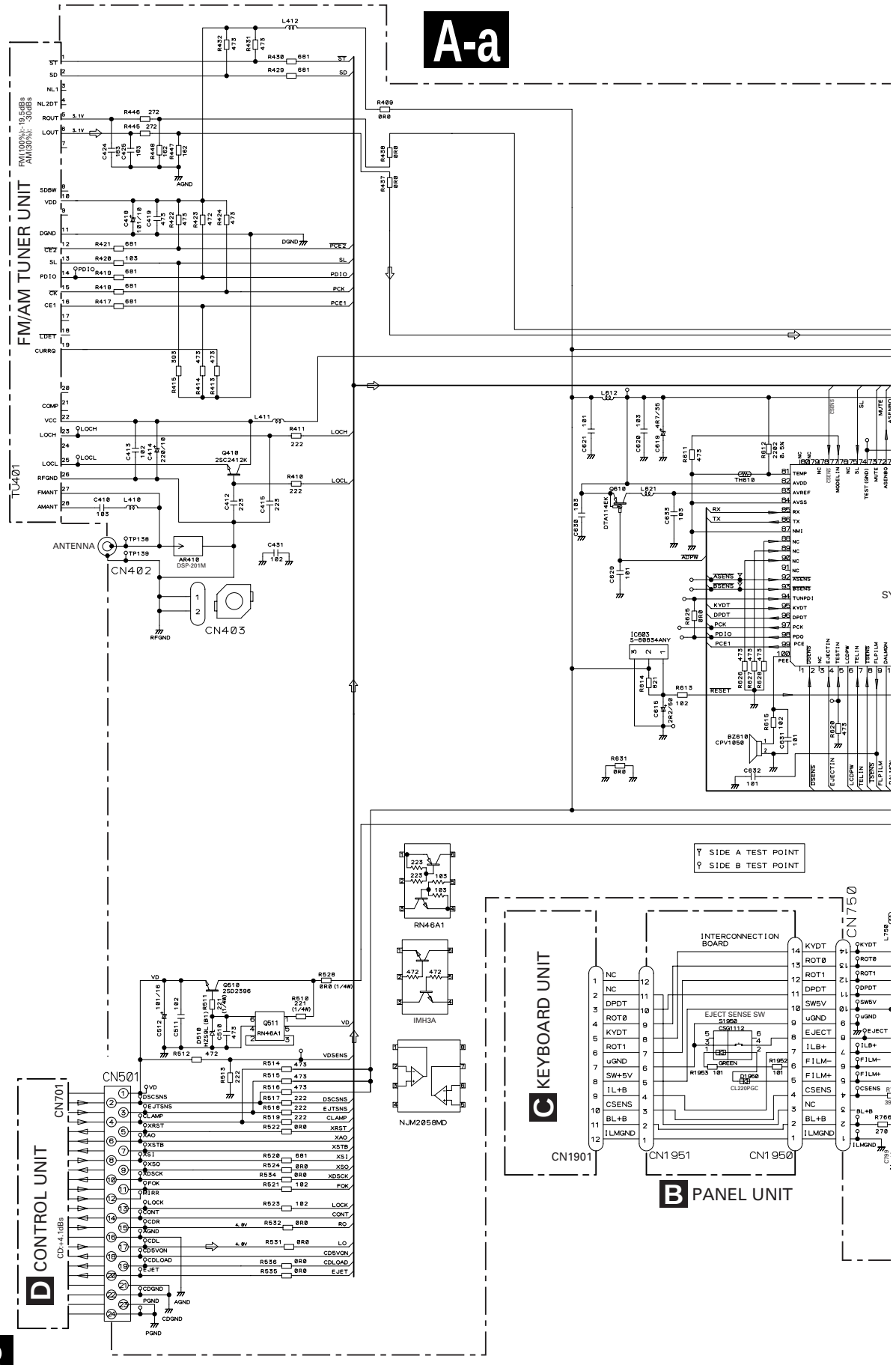

RESET
IC 603
S-80834ANY
VDD
Q913
B.U
Q909
Q610
CN901
BACK UP
GND
SYSTEM
CONTROLLER
IC 601(1/2)
PE5203A
RESET
ADPW
AVREF
DALMON
BSENS
ASENS
ISENS
Q914
Q915
Q917
ACC
ILM
PCE2
SD
ST
LOCL
LOCH
SL
PCK
PDO
PCE1
ASENBO
TX
RX
IPPW
ELECTRONIC VOLUME/
SOURCE SELECTOR
TUN L
BUS+L
CD L
IC 301
PML008A
Fout L
Rout L
MUTE
POWER AMP
FLIN
RLIN
IC 361
PAL006A
RL—
RL+
FL—
FL+
B.REM
STBY
SYSPW
VCC
CN331
FRONT
Q341
P4350
Q362
Q361
X610
TH601
Q910
Q911
Q918
Q912
CN351
Lch
REAR/SW
Q359
Q351


B PANEL UNIT
C KEYBOARD UNIT
CN1950
CN1951
CN1901
IL+B
EJECT
SENSE SW
S1950
P4350
REMOTE CONTROL
SENSOR
OPT IN
IC 1902
SBX8035-H
CSENS
µGND
SW5V
DPDT
KYDT
RDT1
RDT0
BL+B
S1922
Q1905
LCD DRIVER
IC 1903
PD6294A
VDD
REMIN
X0
X1
X1901
DIMMER
KEY DATA
LCD DATA
KEY MATRIX
LCD

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

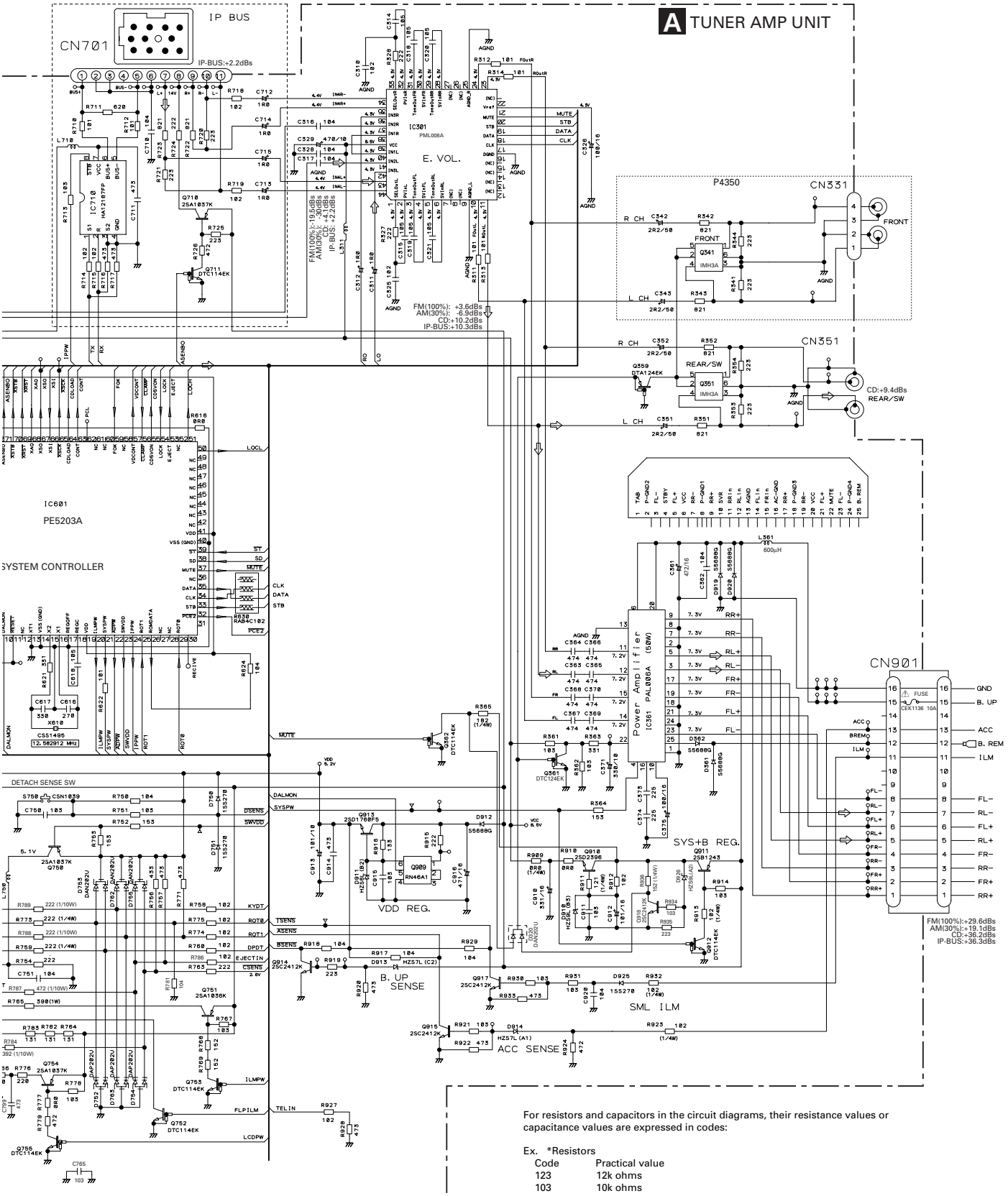
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".





A B

A-b



For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

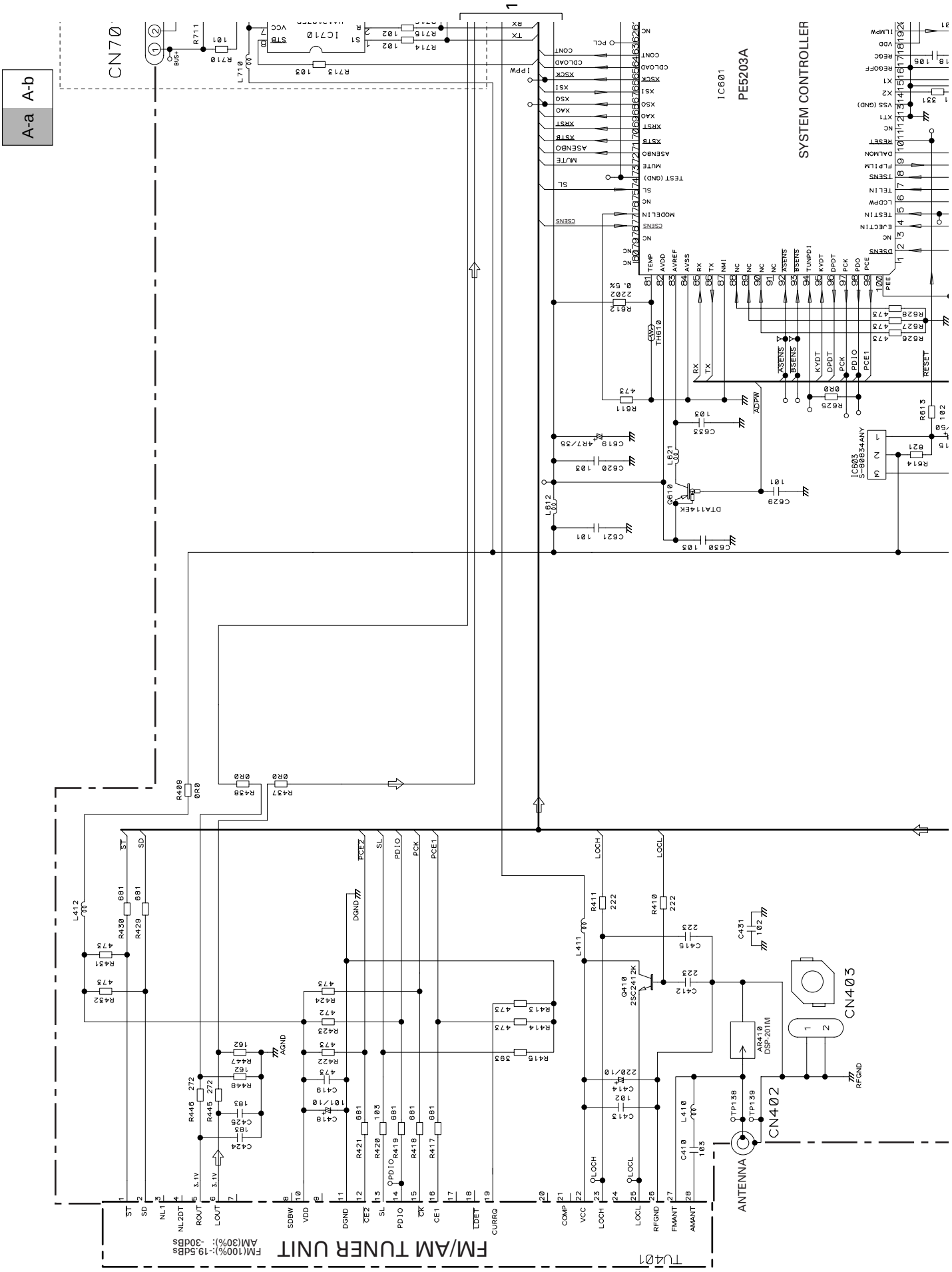
Ex. *Resistors

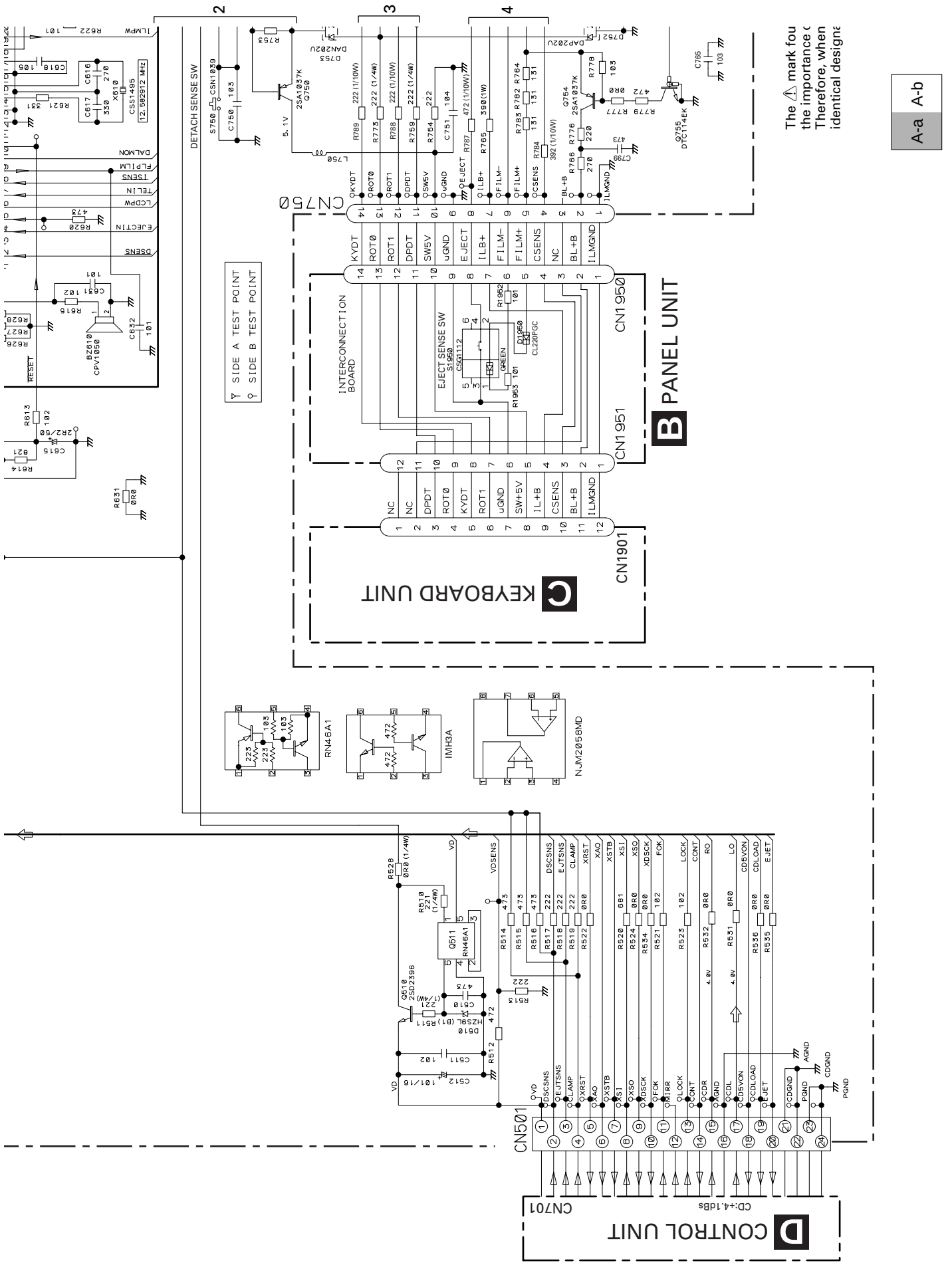
Code	Practical value
123	12k ohms
103	10k ohms

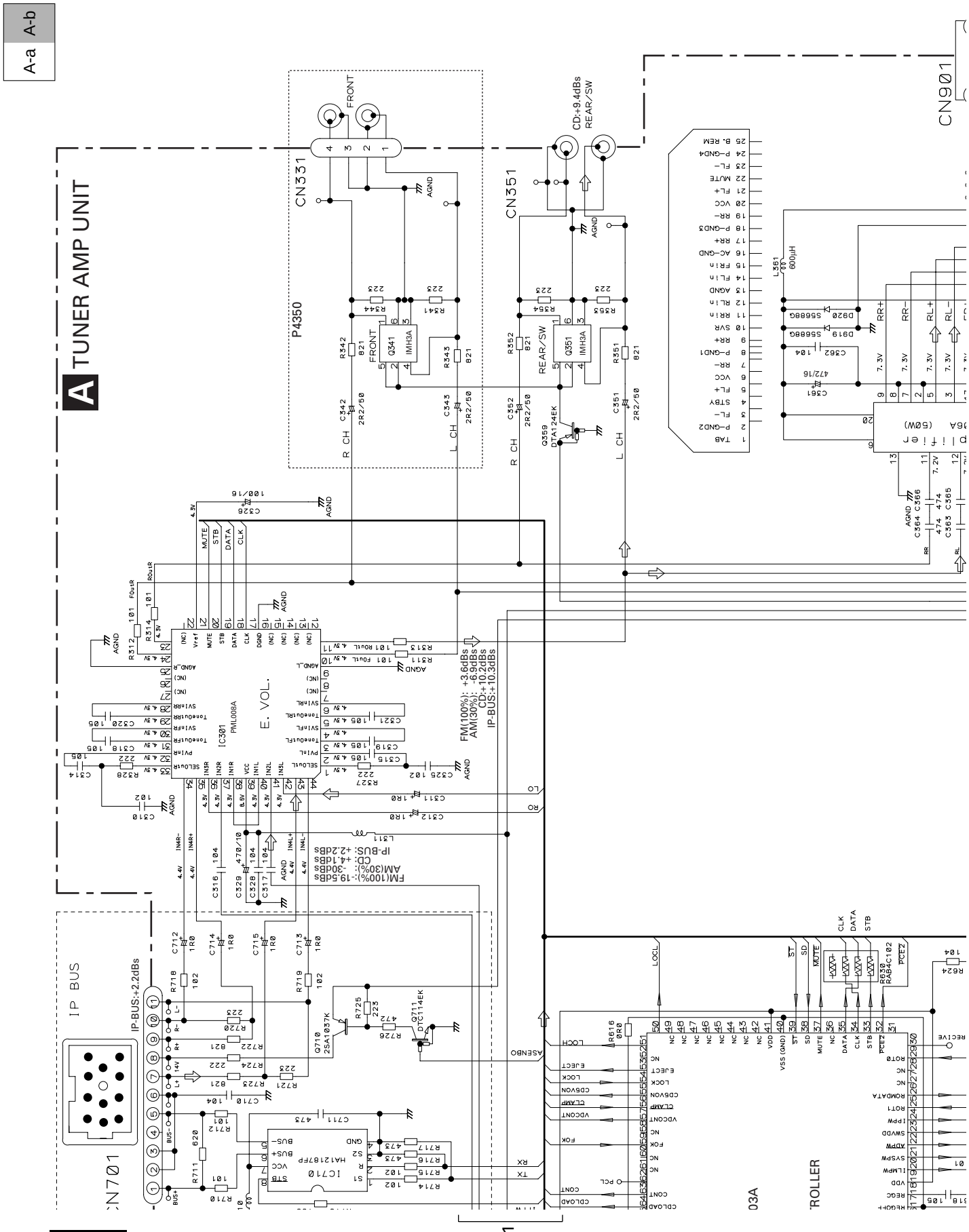
*Capacitors

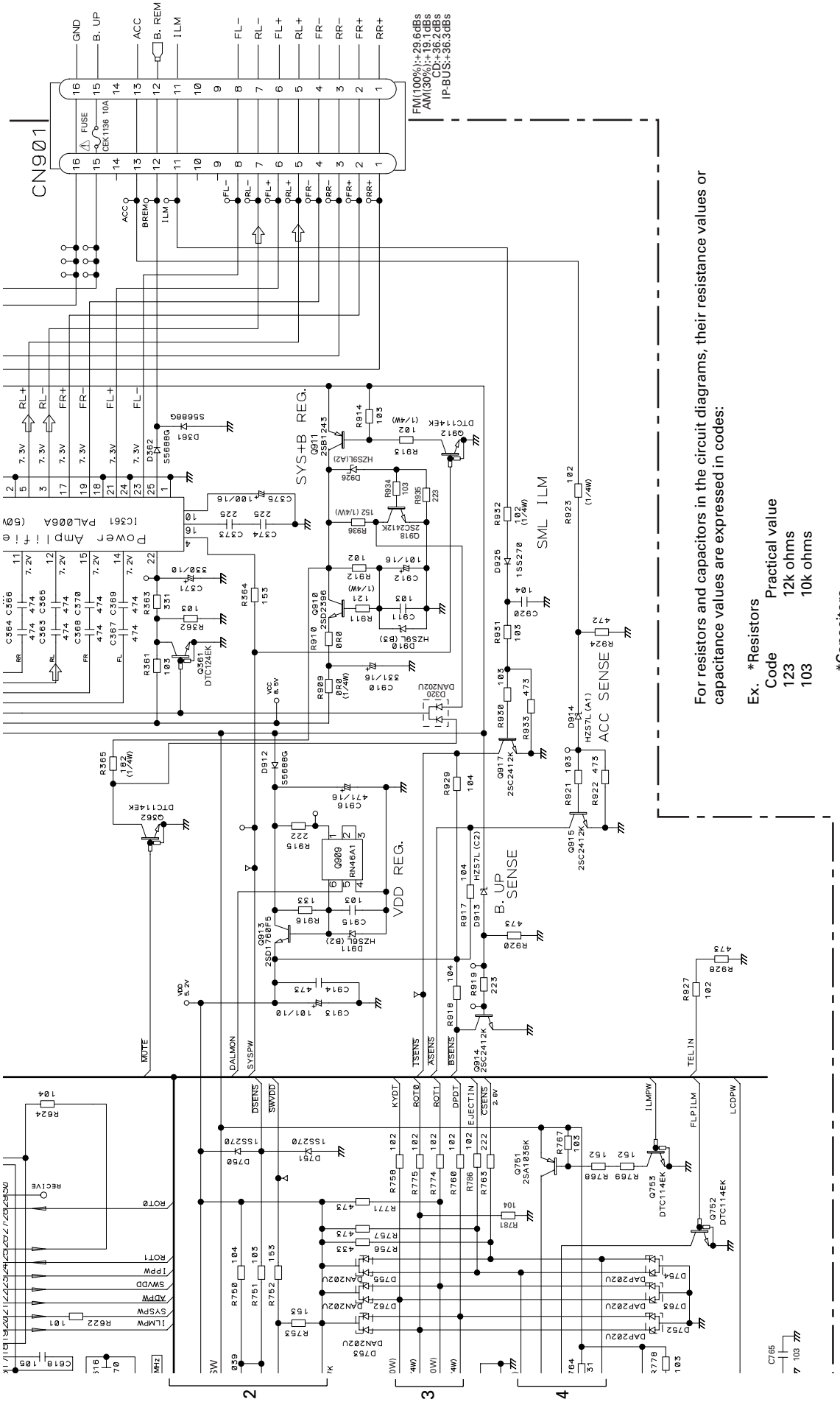
Code	Practical value
103	0.01uF
101/10	100uF/10V

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.


A-b
A-a
SYSTEM CONTROLLER
IC601
PE5203A
CN703
IC710
CN403
CN402
ANTENNA
FM/AM TUNER UNIT
TU401
FM(100%):-19.5dBs
AM(30%): -30dBs


A-b
A-a
The ⚠ mark fou
the importance c
Therefore, when
identical designa
DETACH SENSE SW
SIDE A TEST POINT
SIDE B TEST POINT
CN750
CN1950
CN1951
CN1901
INTERCONNECTION BOARD
EJECT SENSE SW
PANEL UNIT
KEYBOARD UNIT
CONTROL UNIT
CN701
CN501
RN46A1
IMH3A
NJM2058MD
RESET
CD:+4.1dBs


A-b
A-a
A TUNER AMP UNIT
CN331
CN351
CN901
P4350
FRONT
REAR/SW
CD:+9.4dBs
R CH
L CH
IC301
PML008A
E. VOL.
FM(100%): +3.6dBs
AM(30%): -6.9dBs
CD:+10.2dBs
IP-BUS:+10.3dBs
FM(100%):-19.5dBs
AM(30%): -30dBs
CD: +4.1dBs
IP-BUS: +2.2dBs
IP BUS
IP-BUS:+2.2dBs
CN701
IC710
HA12187FP
Q710
2SA1037K
Q711
DTC114EK
Q359
RTA124EK
L361
600µH
MUTE
STB
DATA
CLK
LOCL
ST
SD
CLK
DATA
STB
RECIVE
ROLLER
03A



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Code	Practical value
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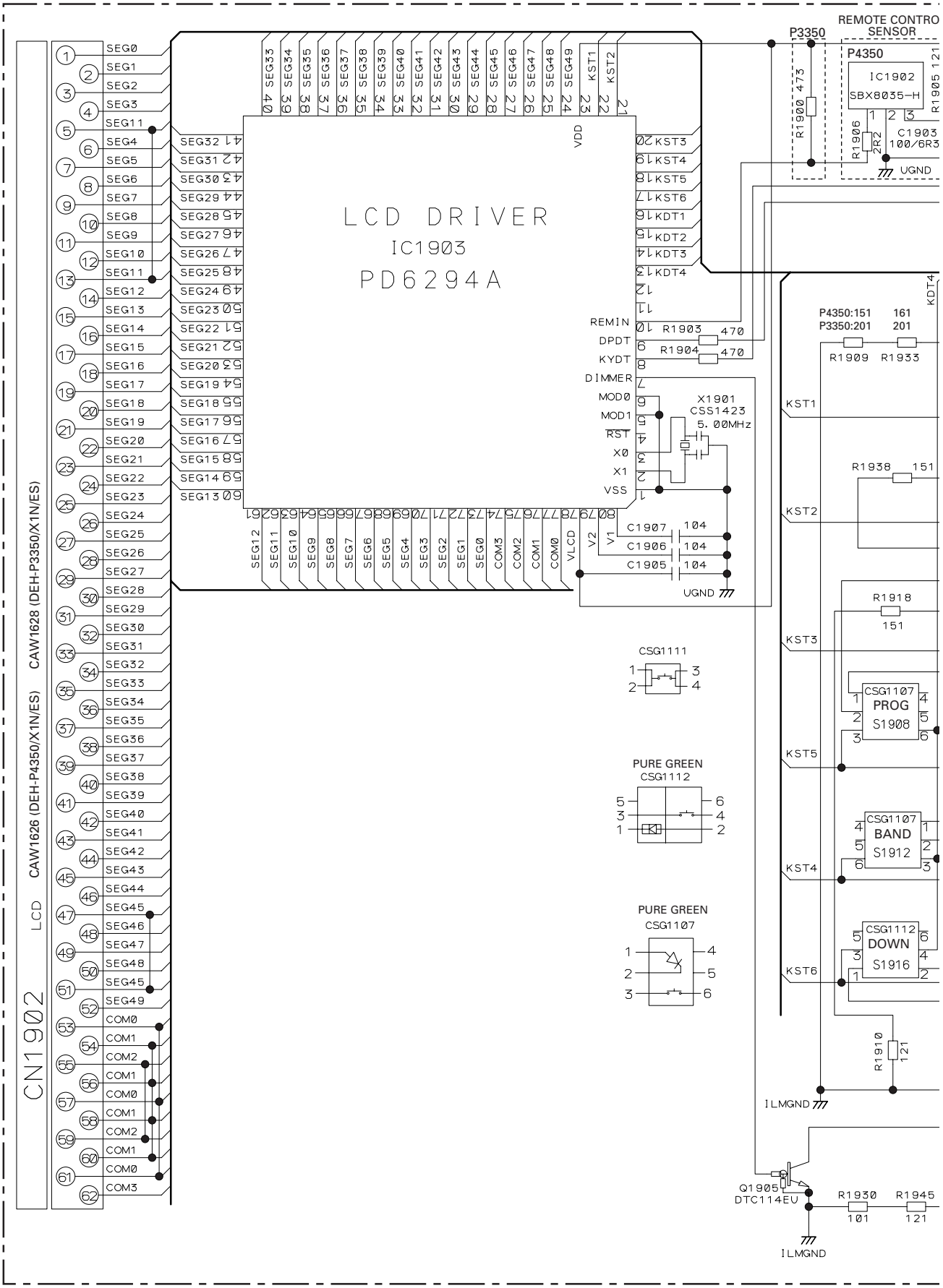
101/10	100uF/10V

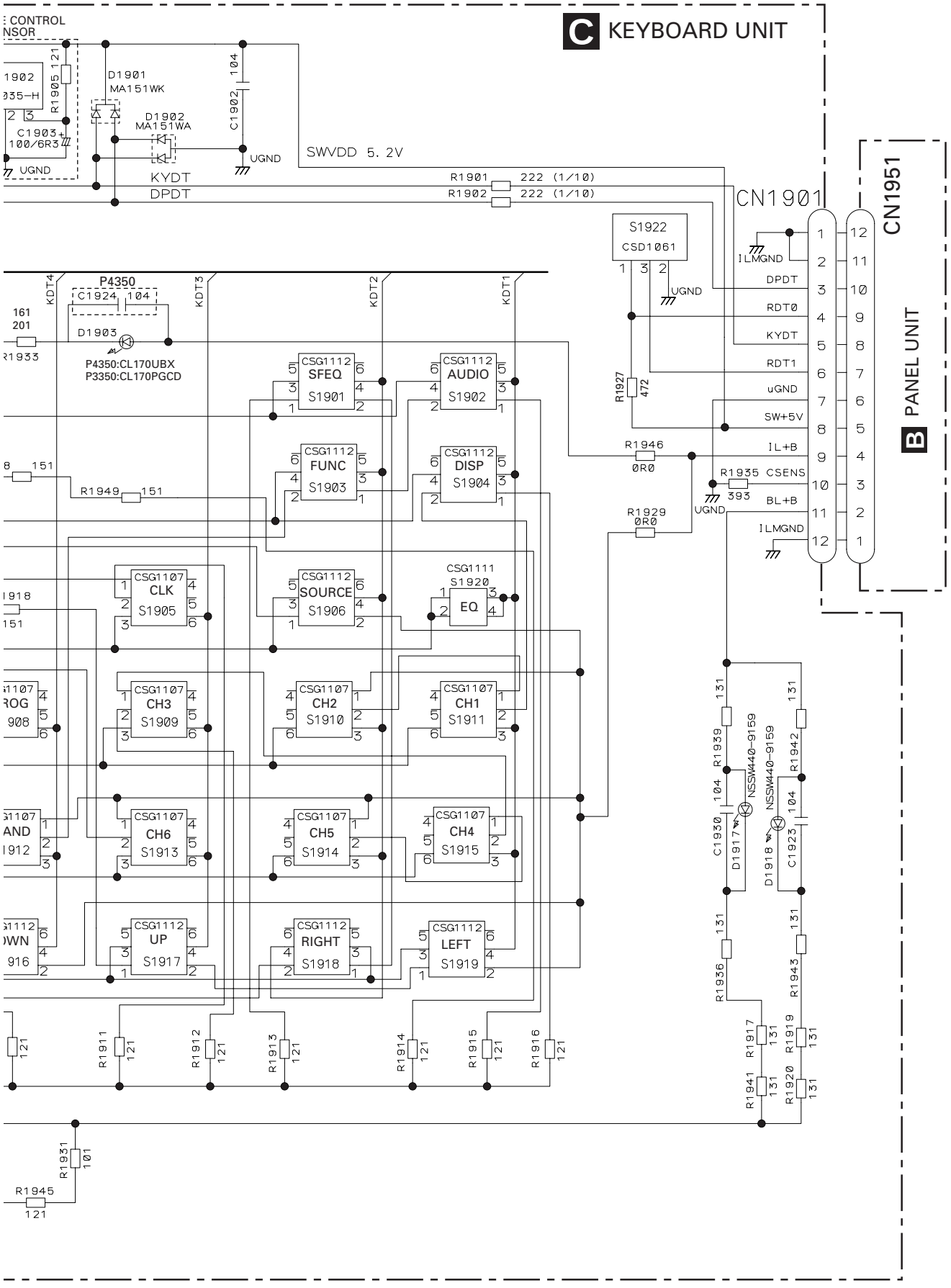
nark found on some component parts indicates
ortance of the safety factor of the part.
e, when replacing, be sure to use parts of
designation.

A-a A-b

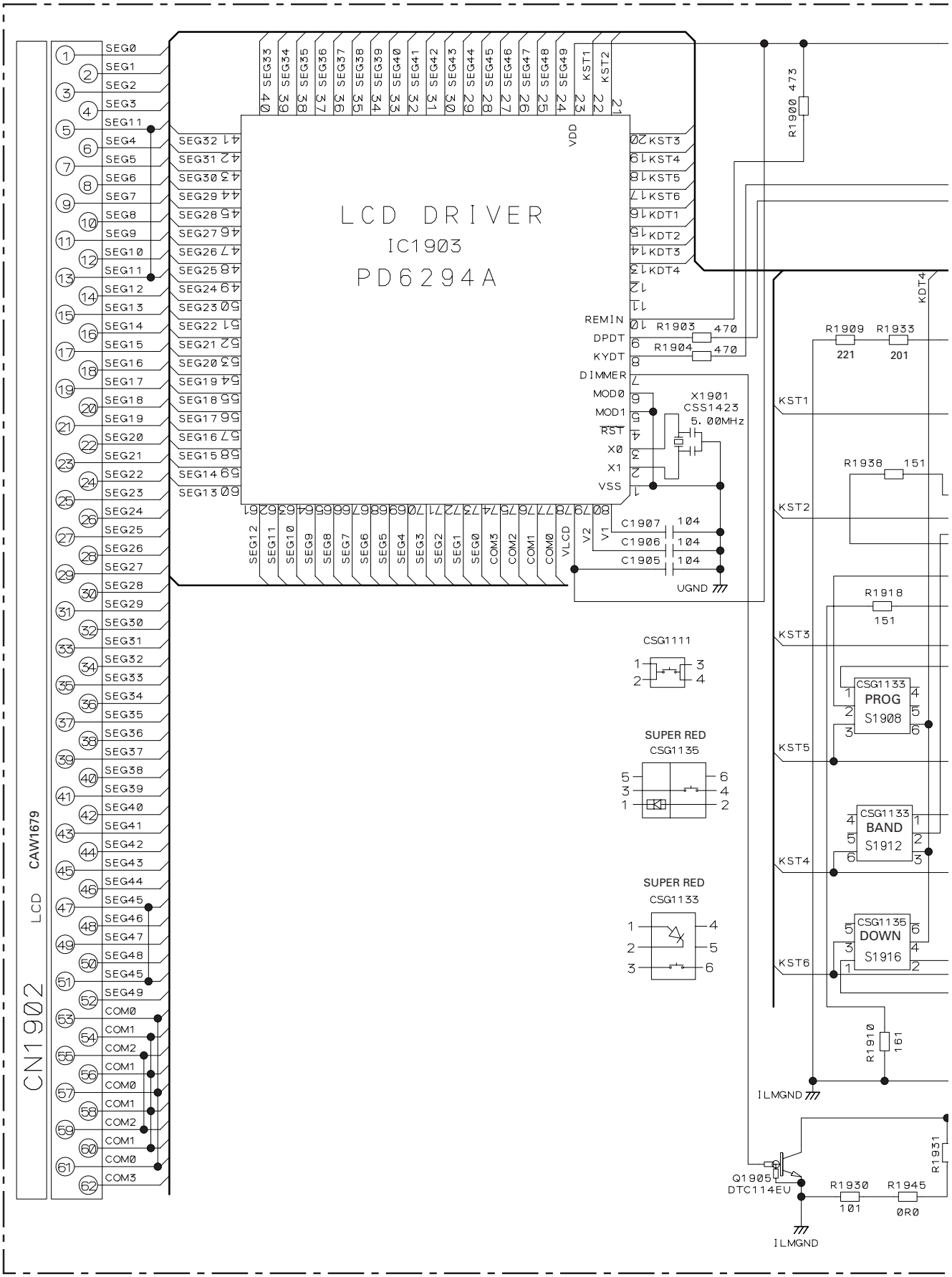
A-b

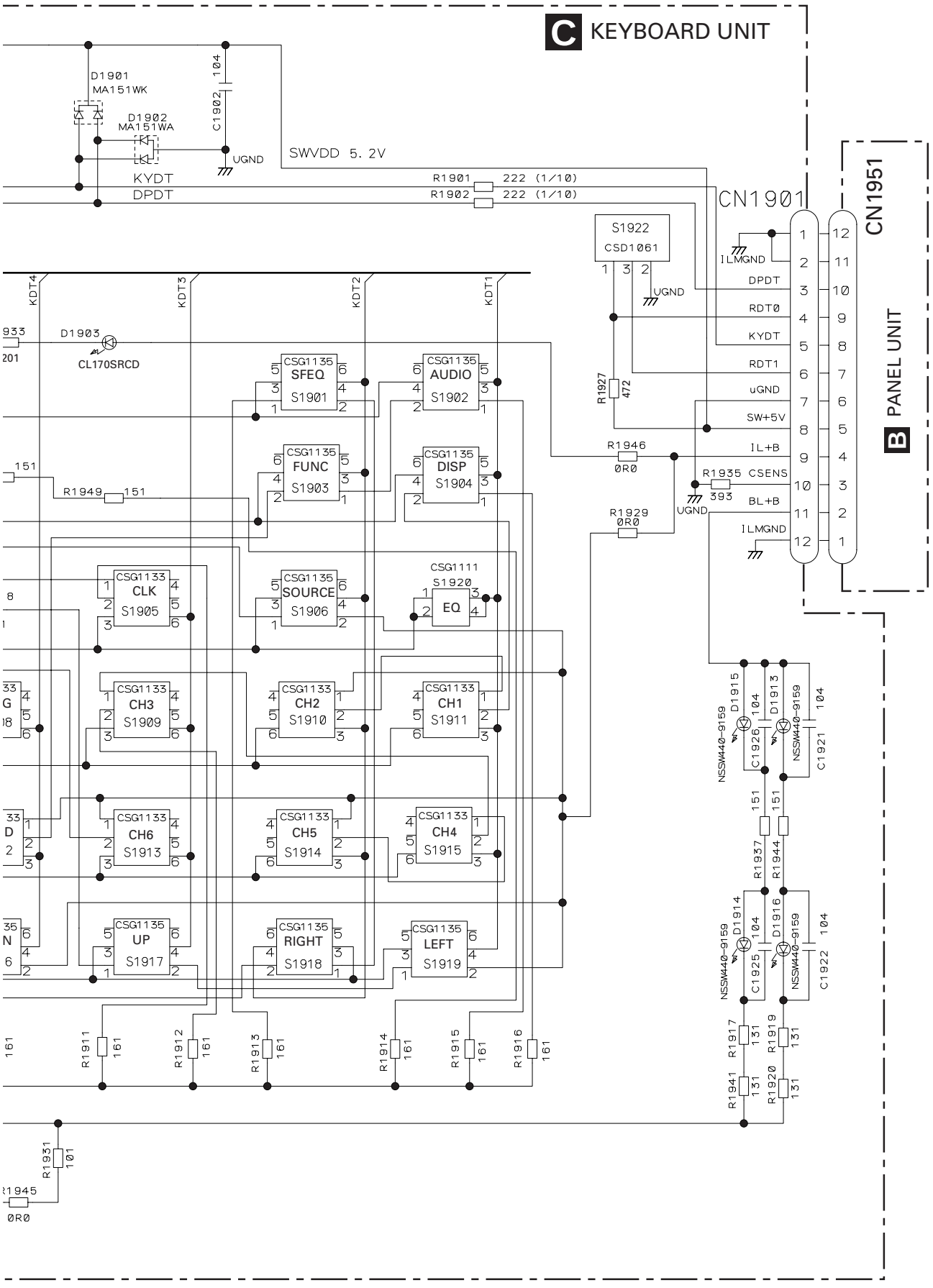
3.3 KEYBOARD UNIT(DEH-P4350/X1N/ES, DEH-P3350/X1N/ES)



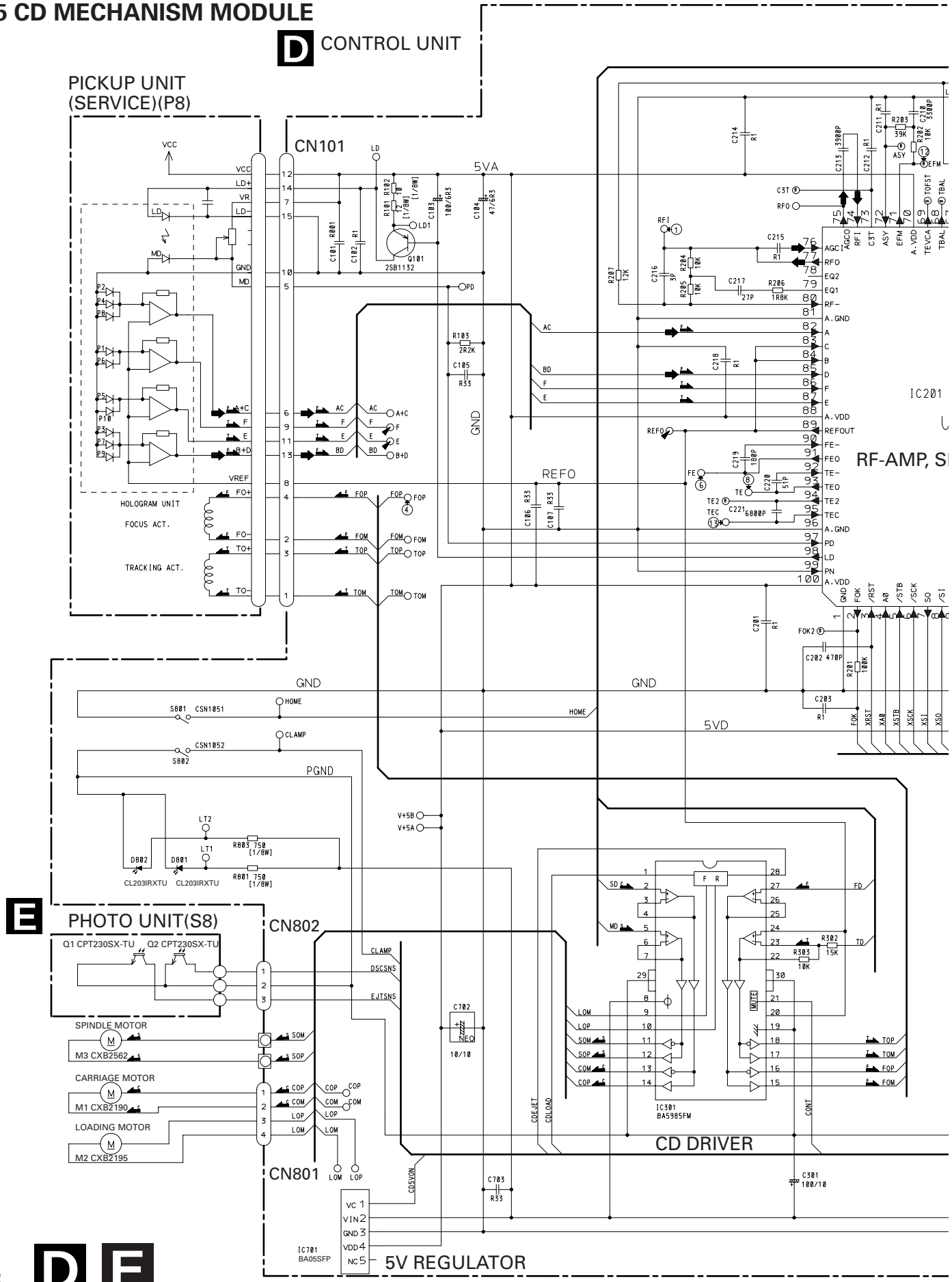

C KEYBOARD UNIT
CONTROL
NSOR
D1901
MA151WK
D1902
MA151WA
C1902 104
C1903+
100/6R3
R1905 121
UGND
SWVDD 5.2V
KYDT
DPDT
R1901 222 (1/10)
R1902 222 (1/10)
CN1901
CN1951
B PANEL UNIT
S1922
CSD1061
ILMGND
DPDT
RDT0
KYDT
RDT1
uGND
SW+5V
IL+B
CSENS
BL+B
ILMGND
R1927 472
R1946 0R0
R1935 393
R1929 0R0
P4350
C1924 104
D1903
P4350:CL170UBX
P3350:CL170PGCD
KDT4
KDT3
KDT2
KDT1
CSG1112 SFEQ S1901
CSG1112 AUDIO S1902
CSG1112 FUNC S1903
CSG1112 DISP S1904
CSG1107 CLK S1905
CSG1112 SOURCE S1906
CSG1111 S1920 EQ
CSG1107 CH3 S1909
CSG1107 CH2 S1910
CSG1107 CH1 S1911
CSG1107 CH6 S1913
CSG1107 CH5 S1914
CSG1107 CH4 S1915
CSG1112 UP S1917
CSG1112 RIGHT S1918
CSG1112 LEFT S1919
R1949 151
NSSW440-9159
C1930
D1917
D1918
C1923
R1939
R1942
R1936
R1943
R1941
R1920
R1911
R1912
R1913
R1914
R1915
R1916
R1931 101
R1945 121

3.4 KEYBOARD UNIT(DEH-P3350B/X1N/ES)

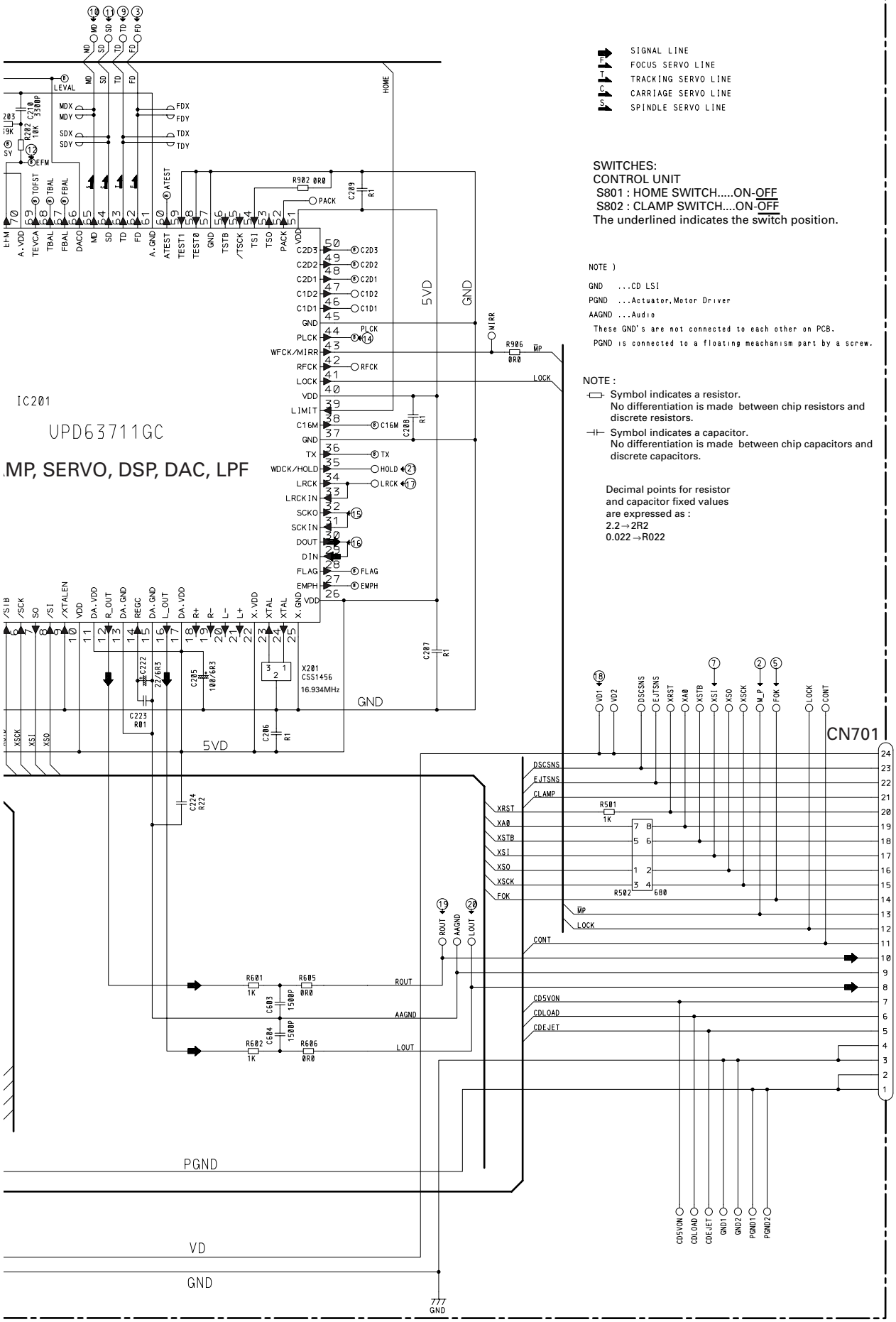



C KEYBOARD UNIT
D1901
MA151WK
D1902
MA151WA
C1902
104
UGND
SWVDD 5.2V
KYDT
DPDT
R1901 222 (1/10)
R1902 222 (1/10)
CN1901
CN1951
B PANEL UNIT
S1922
CSD1061
ILMGND
DPDT
RDT0
KYDT
RDT1
uGND
SW+5V
IL+B
BL+B
ILMGND
R1927
472
R1946
0R0
R1935 CSENS
393
R1929
0R0
KDT4
KDT3
KDT2
KDT1
D1903
CL170SRCD
CSG1135 SFEQ S1901
CSG1135 AUDIO S1902
CSG1135 FUNC S1903
CSG1135 DISP S1904
R1949 151
CSG1133 CLK S1905
CSG1135 SOURCE S1906
CSG1111 S1920 EQ
CSG1133 CH3 S1909
CSG1133 CH2 S1910
CSG1133 CH1 S1911
CSG1133 CH6 S1913
CSG1133 CH5 S1914
CSG1133 CH4 S1915
CSG1135 UP S1917
CSG1135 RIGHT S1918
CSG1135 LEFT S1919
R1911 161
R1912 161
R1913 161
R1914 161
R1915 161
R1916 161
R1931 101
0R0
D1915
D1913
D1914
D1916
NSSW440-9159
C1926
C1921
C1925
C1922
R1937
R1944
R1917
R1919
R1941
R1920

3.5 CD MECHANISM MODULE



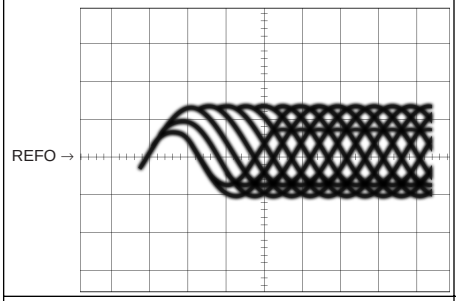
D E


SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
SWITCHES:
CONTROL UNIT
S801 : HOME SWITCH.....ON-OFF
S802 : CLAMP SWITCH....ON-OFF
The underlined indicates the switch position.
NOTE)
GND ...CD LSI
PGND ...Actuator, Motor Driver
AAGND ...Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating meachanism part by a screw.
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022
IC201
UPD63711GC
MP, SERVO, DSP, DAC, LPF
X201
CSS1456
16.934MHz
CN701
CN501
5VD
GND
PGND
VD
GND

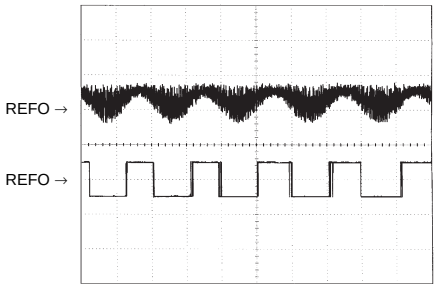
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

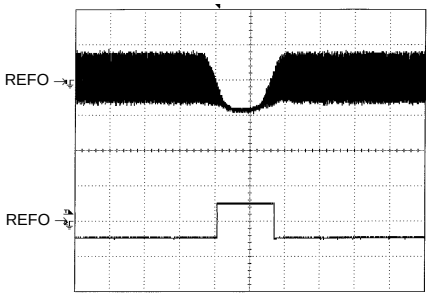
① RFI 0.5V/div. 0.5µs/div.
Normal mode: play



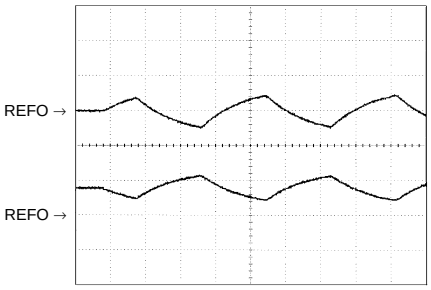
① CH1: RFI 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Test mode: Tracking open



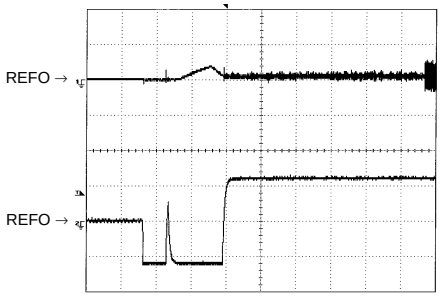
① CH1: RFI 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Normal mode: The defect part passes 800µm



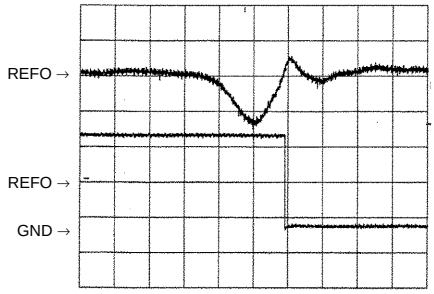
③ CH1: FD 0.5V/div. 0.2s/div.
④ CH2: FO+ 2V/div.
Test mode: No disc, Focus close



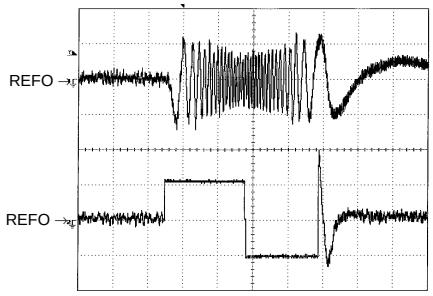
③ CH1: FD 0.5V/div. 0.2s/div.
⑤ CH2: FOK 2V/div.
Normal mode: Focus close



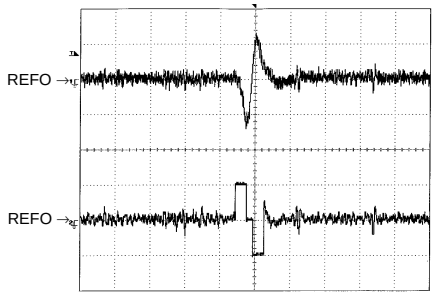
⑥ CH1: FE 0.5V/div. 1ms/div.
⑦ CH2: XSI 2V/div.
Normal mode: Focus close



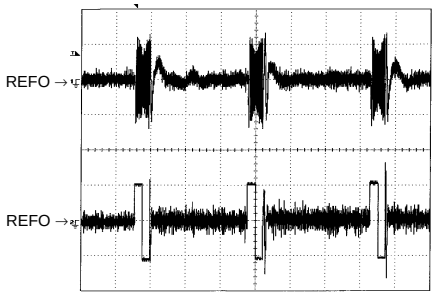
⑧ CH1: TE 0.5V/div. 0.5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: 32 tracks jump (FWD)



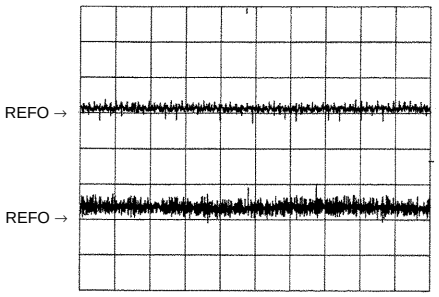
⑧ CH1: TE 0.5V/div. 0.5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: Single jump (FWD)



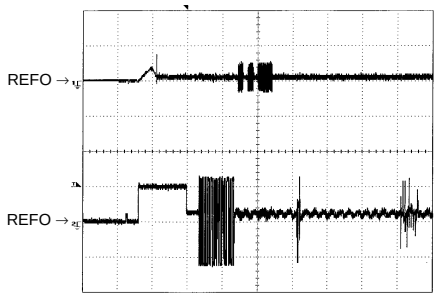
⑧ CH1: TE 0.5V/div. 5ms/div.
⑨ CH2: TD 0.5V/div.
Test mode: 100 tracks jump (FWD)



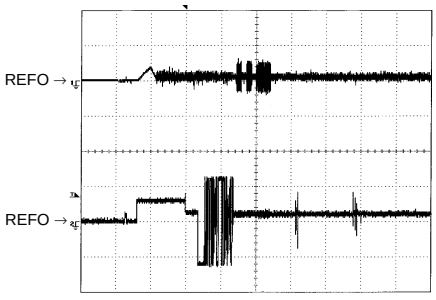
⑥ CH1: FE 0.1V/div. 20ms/div.
③ CH2: FD 0.2V/div.
Normal mode: Play



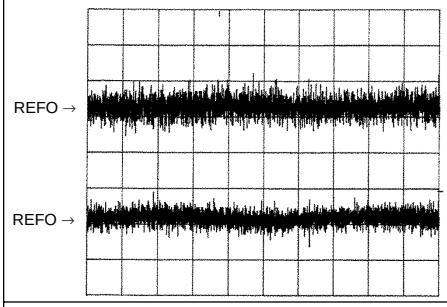
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MD 1V/div.
Normal mode: Focus close (12cm)



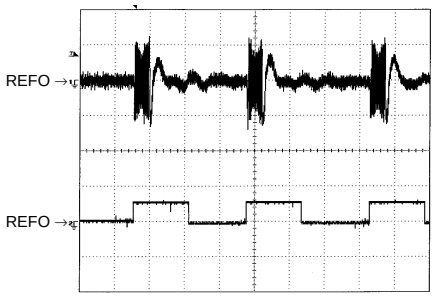
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MD 1V/div.
Normal mode: Focus close (8cm)



⑧ CH1: TE 0.2V/div. 20ms/div.
⑨ CH2: TD 0.2V/div.
Normal mode: play

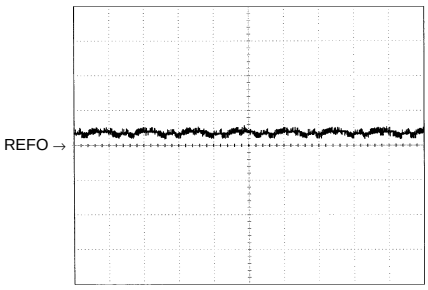


⑧ CH1: TE 0.5V/div. 5ms/div.
⑪ CH2: SD 0.5V/div.
TEST mode: 100 Tracks jump(FWD)

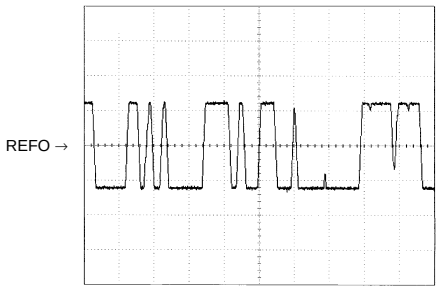


⑩ MD 0.5V/div. 0.1s/div.

Normal mode: Play (12cm)

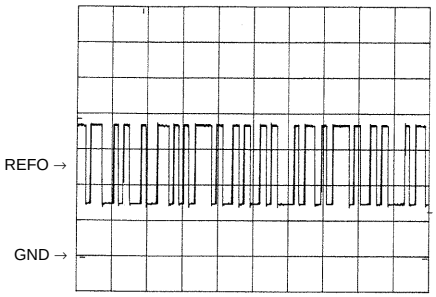


⑩ MD 1V/div. 10ms/div.
Normal mode:
Long Search (12cm)

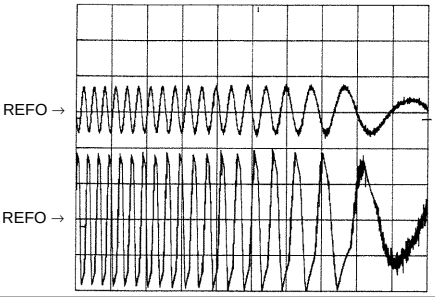


⑫ EFM 1V/div. 5µs/div.

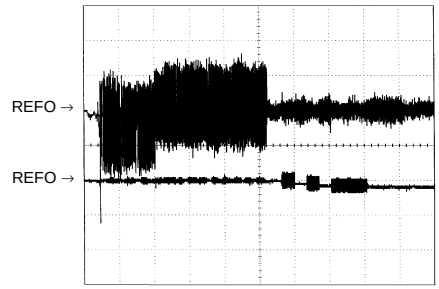
Normal mode: play



⑧ CH1: TE 1V/div. 2ms/div.
⑬ CH2: TEC 1V/div.
Test mode: Focus close
Tracking open

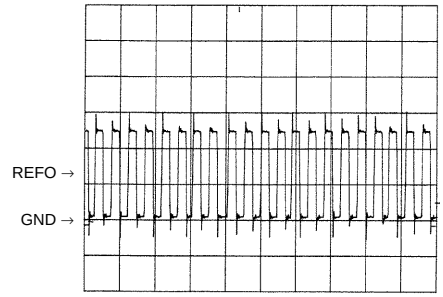


⑧ CH1: TE 0.5V/div. 0.2s/div.
⑥ CH2: FE 0.5V/div.
Normal mode: AGC after focus close



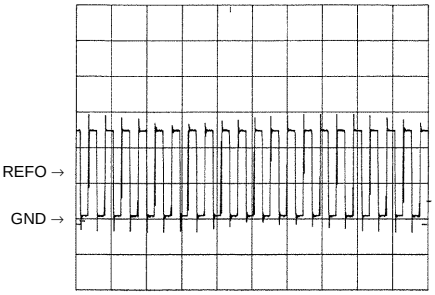
⑭ PLCK 2V/div. 0.5µs/div.

Normal mode: play



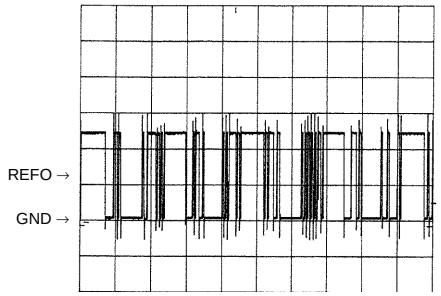
⑮ SCKO 2V/div. 1µs/div.

Normal mode: play



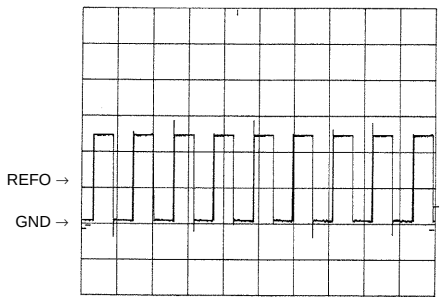
⑯ Dout 2V/div. 10µs/div.

Normal mode: play



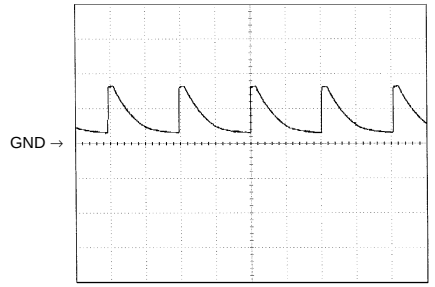
⑰ LRCK 2V/div. 20µs/div.

Normal mode: play

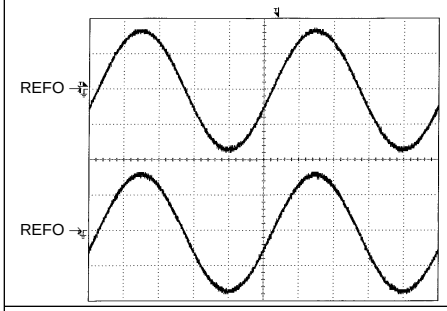


⑱ VD 5V/div. 50ms/div.

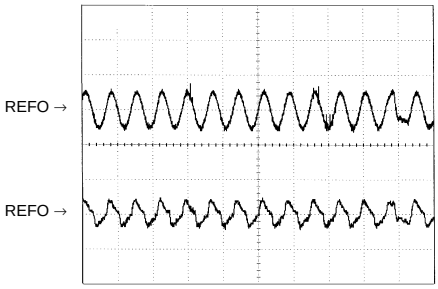
Normal mode: No disc



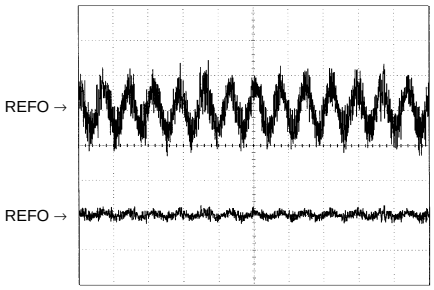
⑲ CH1: R OUT 1V/div.
⑳ CH2: L OUT 1V/div.
0.2ms/div.
Normal mode: Play (1kHz 0dB)



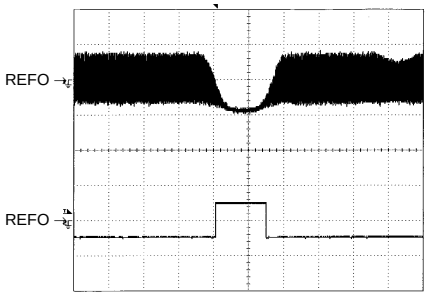
⑥ CH1: FE 0.2V/div.
③ CH2: FD 0.5V/div.
1ms/div.
Normal mode: During AGC



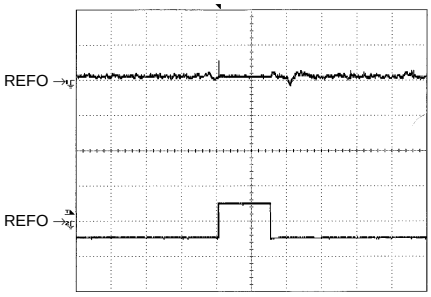
⑧ CH1: TE 0.2V/div.
⑨ CH2: TD 0.5V/div.
1ms/div.
Normal mode: During AGC



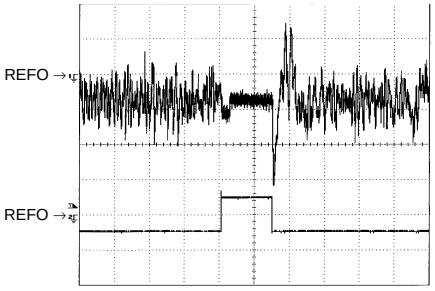
① CH1: RFI 1V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)



③ CH1: FD 0.5V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)



⑨ CH1: TD 0.1V/div.
㉑ CH2: HOLD 5V/div.
0.5ms/div.
Normal mode: The defect part passes 800µm(B.D)

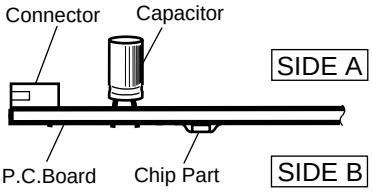


4. PCB CONNECTION DIAGRAM

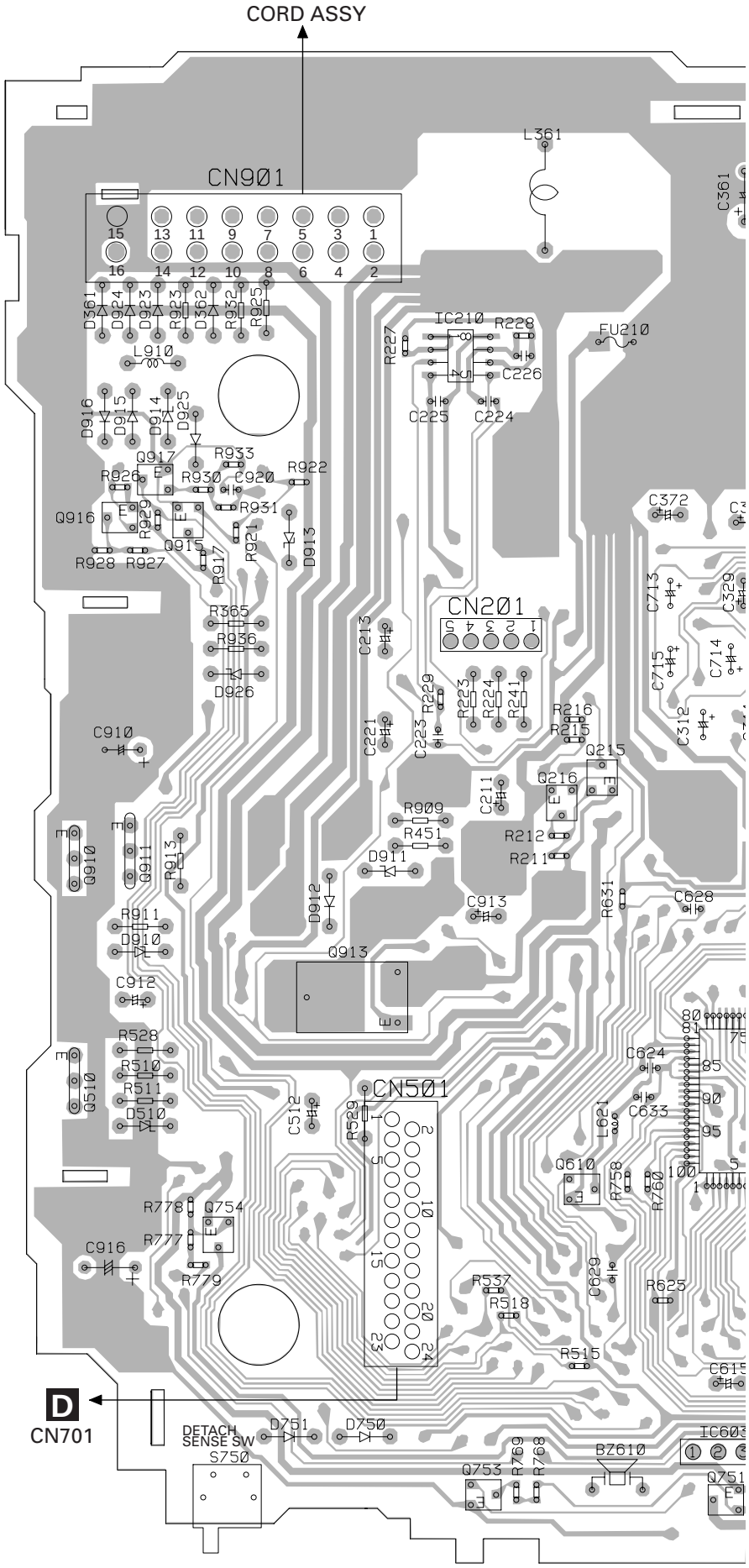
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

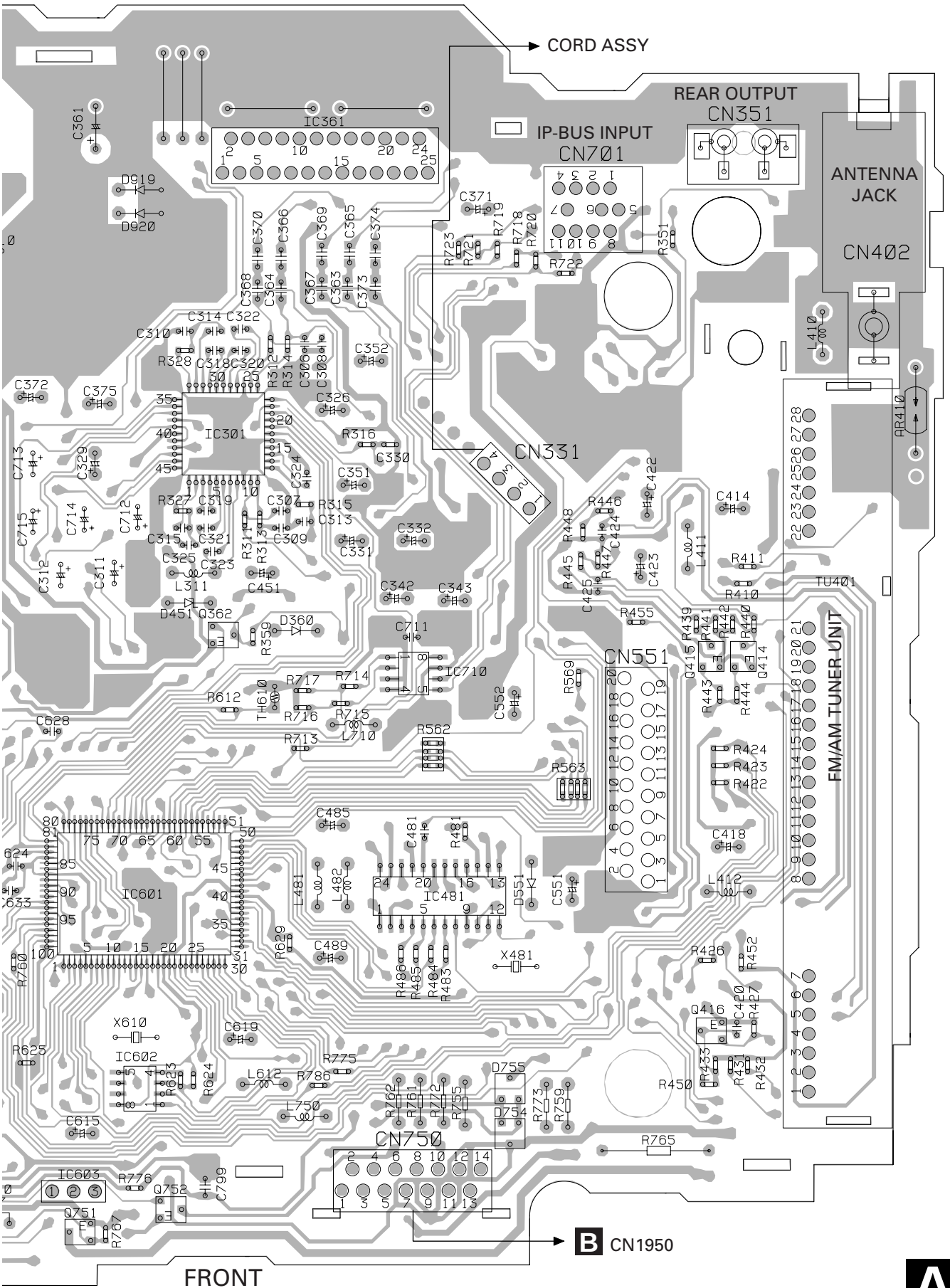
1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



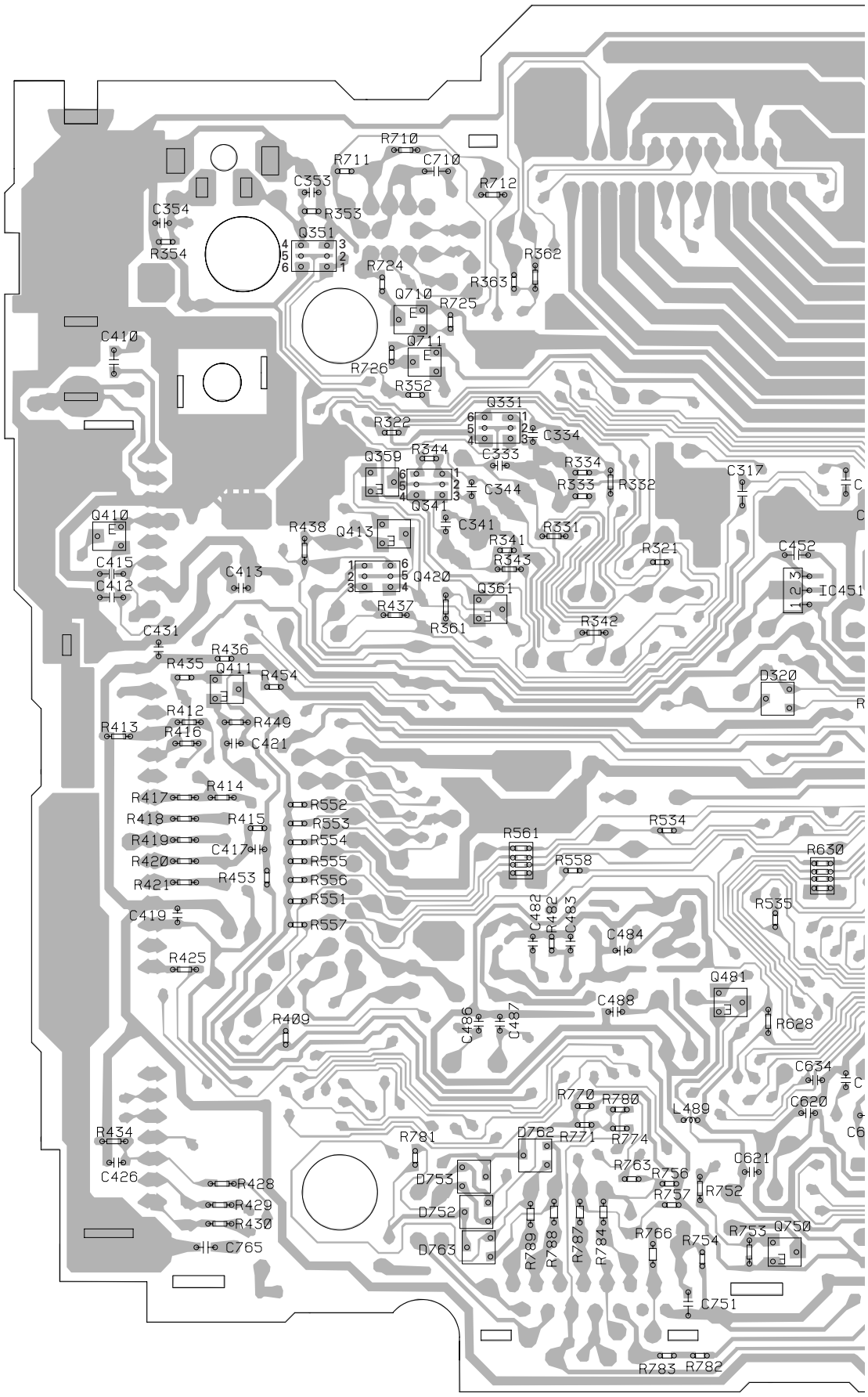
A TUNER AMP UNIT



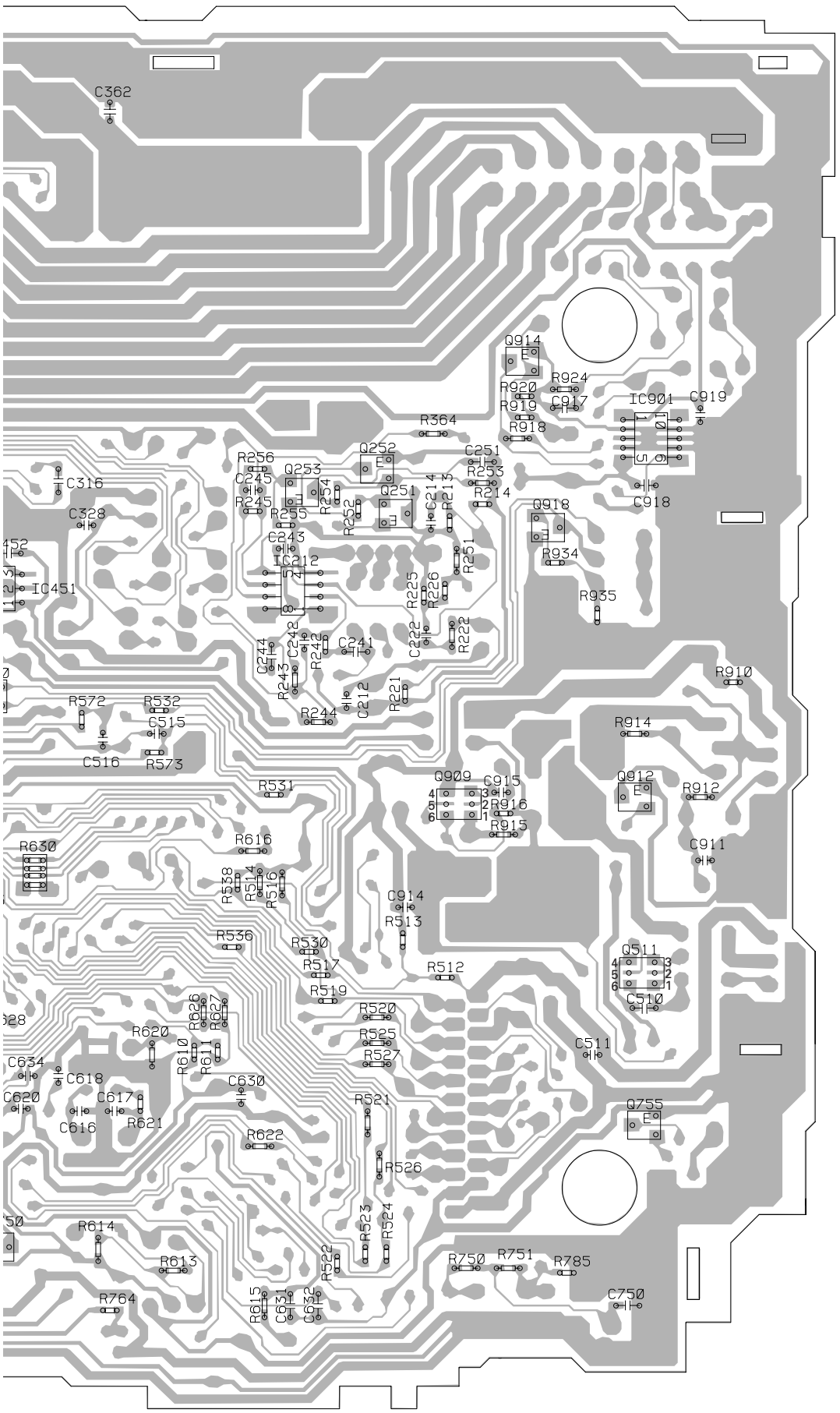
SIDE A


CORD ASSY
REAR OUTPUT
CN351
IP-BUS INPUT
CN701
ANTENNA JACK
CN402
IC361
IC301
CN331
IC710
CN551
IC601
IC481
IC602
IC603
CN750
TU401
FM/AM TUNER UNIT
B CN1950
FRONT

A TUNER AMP UNIT



SIDE B



IC, Q

A

Q351

Q710

Q711 Q914

Q331 IC901

B

Q252
Q359 Q253

Q341 Q251
Q410 Q918
Q413
IC212
Q420
Q361 IC451

Q411

Q909 Q912

C

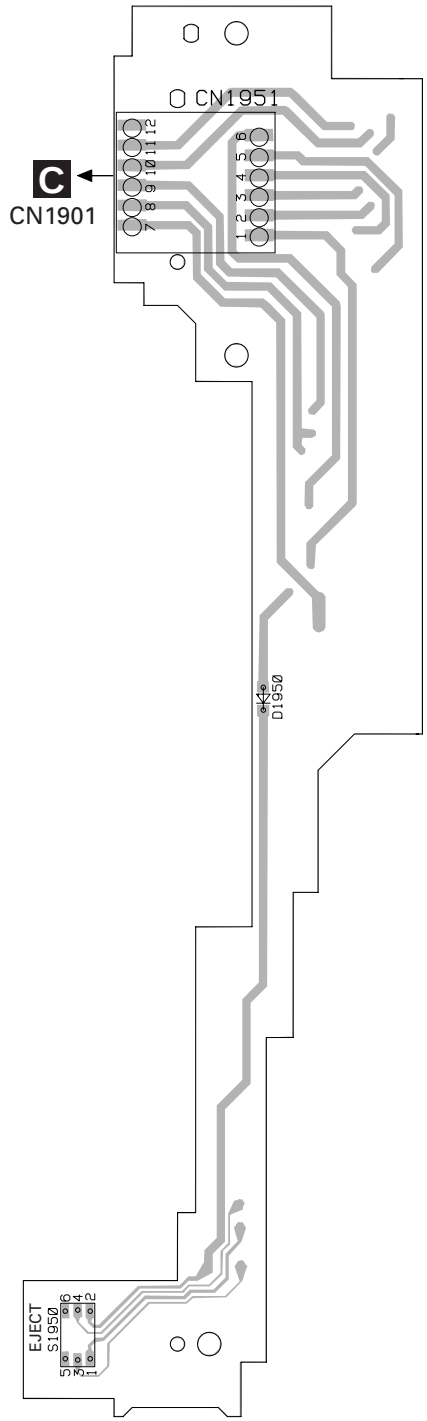
Q511
Q481

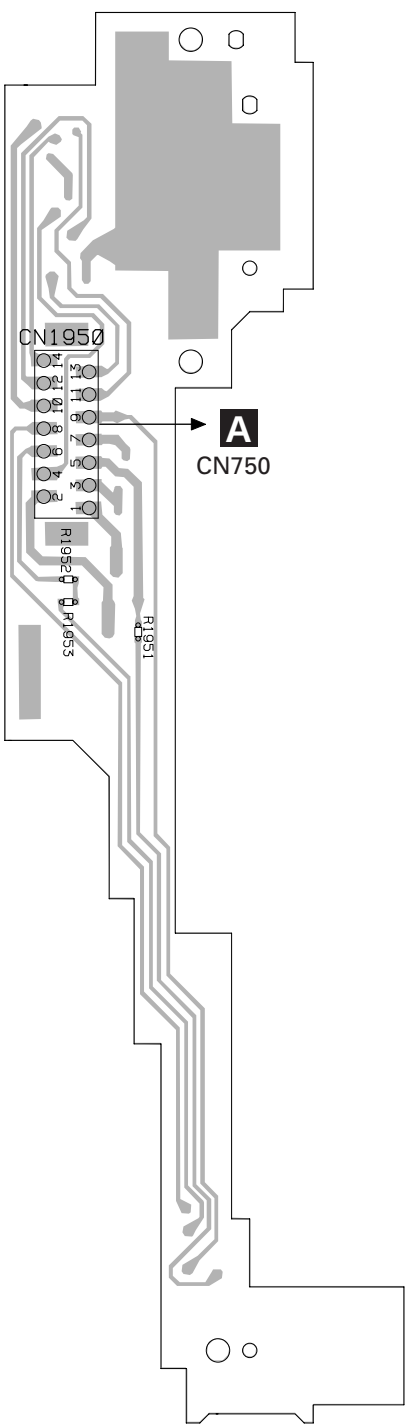
Q755

Q750

D

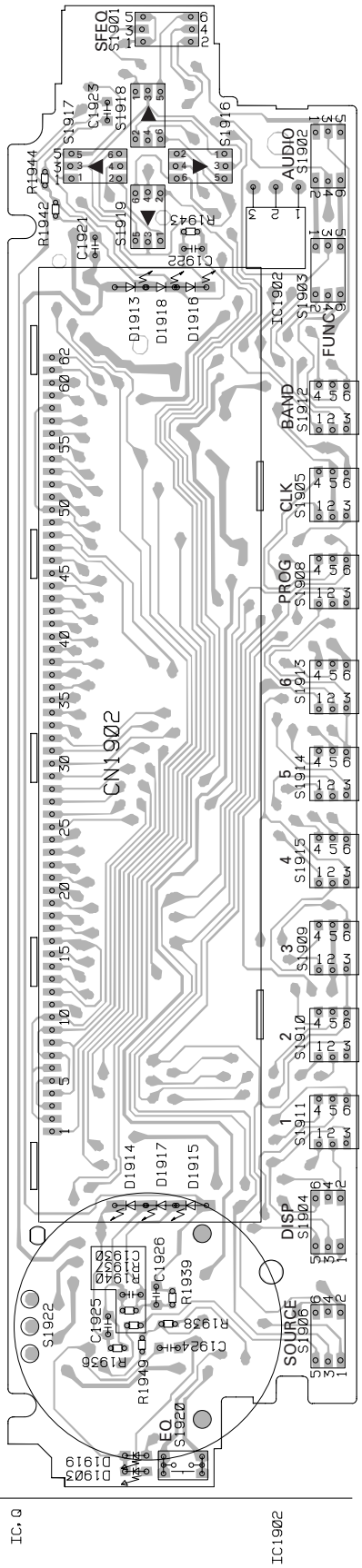
4.2 PANEL UNIT



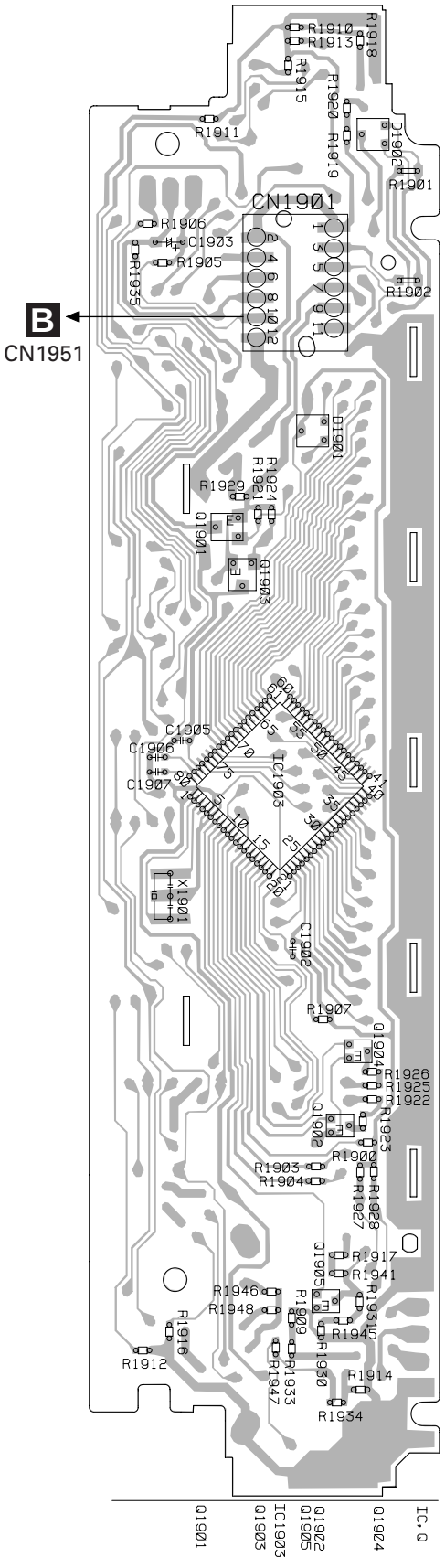


4.3 KEYBOARD UNIT

SIDE A



SIDE B

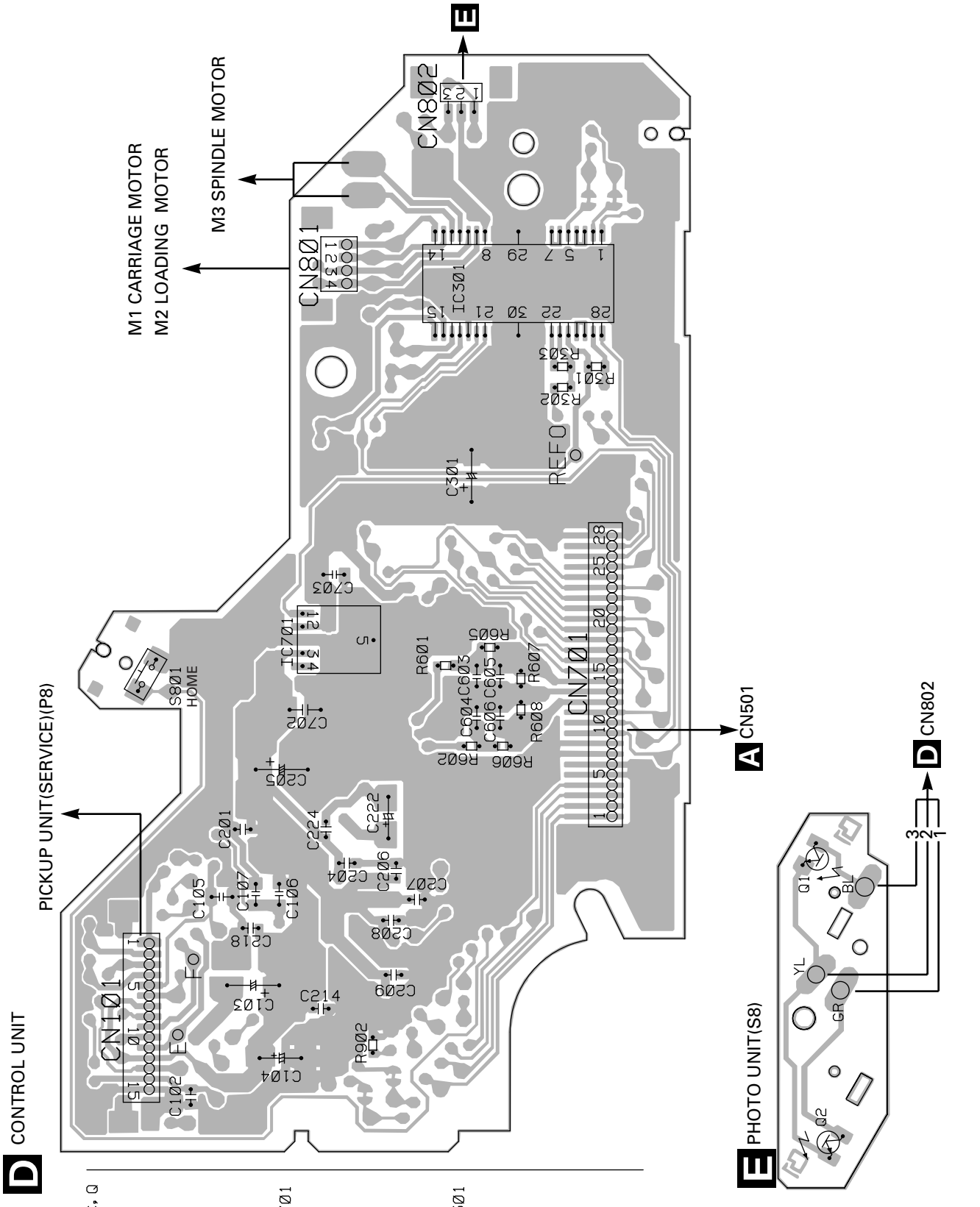


KEYBOARD UNIT

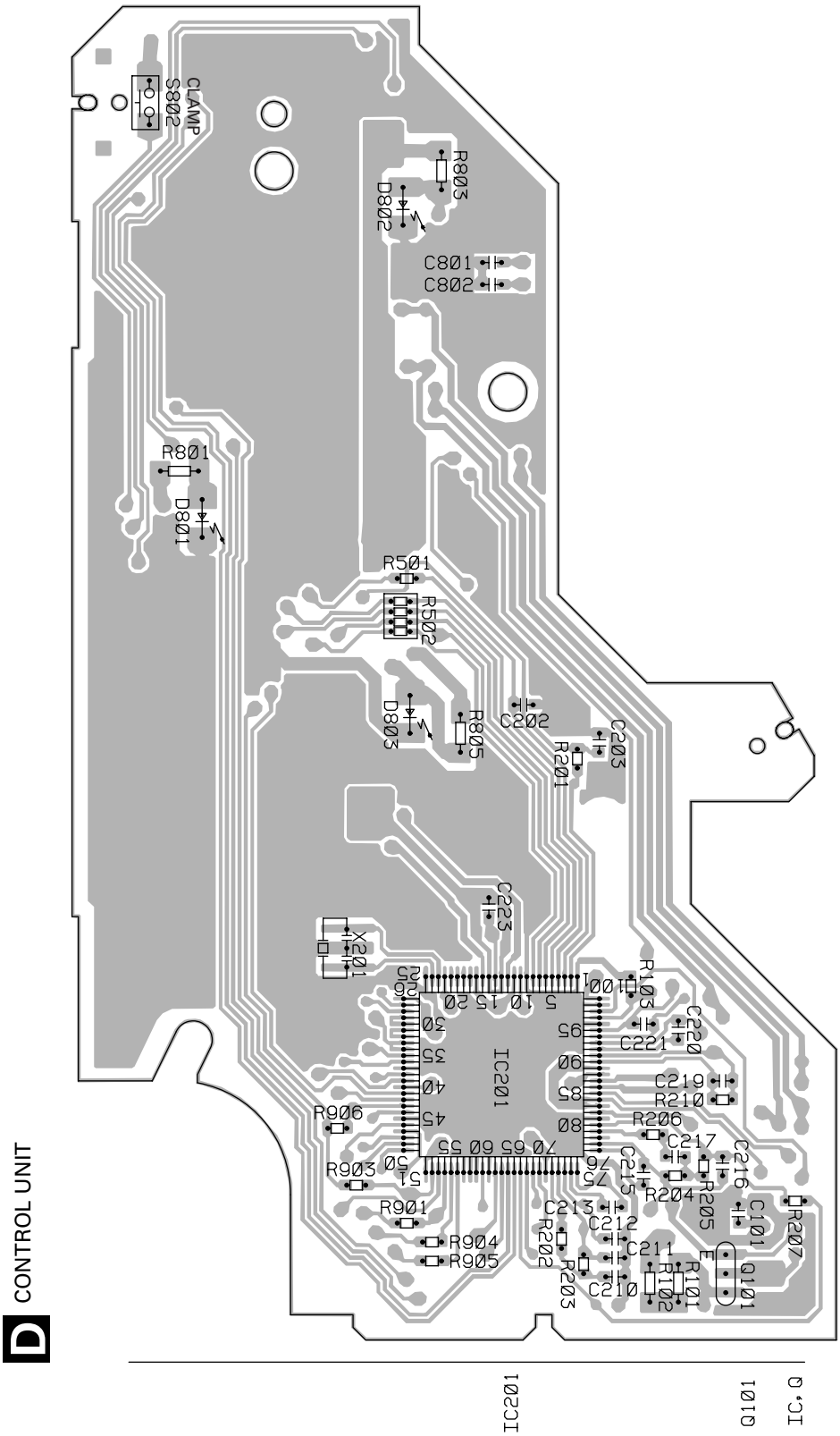
KEYBOARD UNIT

4.4 CD MECHANISM MODULE

SIDE A



SIDE B



D CONTROL UNIT

5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM7376(DEH-P4350/X1N/ES)
Unit Number : CWM7676(DEH-P3350B/X1N/ES)
Unit Number : CWM7383(DEH-P3350/X1N/ES)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	301	IC	PML008A
IC	361	IC	PAL006A
IC	601	IC	PE5203A
IC	603	IC	S-80834ANY
IC	710	IC	HA12187FP
Q	341	Transistor(DEH-P4350/X1N/ES)	IMH3A
Q	351	Transistor	IMH3A
Q	359	Transistor	DTA124EK
Q	361	Transistor	DTC124EK
Q	362	Transistor	DTC114EK
Q	410	Transistor	2SC2412K
Q	510	Transistor	2SD2396
Q	511	Transistor	RN46A1
Q	610	Transistor	DTA114EK
Q	710	Transistor	2SA1037K
Q	711	Transistor	DTC114EK
Q	750	Transistor	2SA1037K
Q	751	Transistor	2SA1036K
Q	752	Transistor	DTC114EK
Q	753	Transistor	DTC114EK
Q	754	Transistor	2SA1037K
Q	755	Transistor	DTC114EK
Q	909	Transistor	RN46A1
Q	910	Transistor	2SD2396
Q	911	Transistor	2SB1243
Q	912	Transistor	DTC114EK
Q	913	Transistor	2SD1760F5
Q	914	Transistor	2SC2412K
Q	915	Transistor	2SC2412K
Q	917	Transistor	2SC2412K
Q	918	Transistor	2SC2412K
D	320	Diode	DAN202U
D	361	Diode	S5688G
D	362	Diode	S5688G
D	510	Diode	HZS9L(B1)
D	750	Diode	1SS270
D	751	Diode	1SS270
D	752	Diode	DAP202U
D	753	Diode	DAN202U
D	754	Diode	DAP202U
D	755	Diode	DAN202U
D	762	Diode	DAN202U
D	763	Diode	DAP202U
D	910	Diode	HZS9L(B3)
D	911	Diode	HZS6L(B2)

=====Circuit Symbol and No.		===Part Name	Part No.
D	912	Diode	S5688G
D	913	Diode	HZS7L(C2)
D	914	Diode	HZS7L(A1)
D	919	Diode	S5688G
D	920	Diode	S5688G
D	925	Diode	1SS270
D	926	Diode	HZS9L(A2)
L	311	Ferri-Inductor	LAU4R7K
L	361	Choke Coil 600µH	CTH1221
L	410	Ferri-Inductor	LAU4R7K
L	411	Ferri-Inductor	LAU2R2K
L	412	Ferri-Inductor	LAU2R2K
L	612	Inductor	LAU100K
L	621	Inductor	CTF1346
L	710	Ferri-Inductor	LAU2R2K
L	750	Ferri-Inductor	LAU2R2K
TH	610	Thermistor	CCX1037
X	610	Radiator 12.5829MHz	CSS1495
S	750	Switch(DETACH SENSE)	CSN1039
BZ	610	Buzzer	CPV1050
AR	410	Arrester	DSP-201M
		FM/AM Tuner Unit	CWE1563

RESISTORS

R	311		RS1/16S101J
R	312		RS1/16S101J
R	313		RS1/16S101J
R	314		RS1/16S101J
R	327		RS1/16S222J
R	328		RS1/16S222J
R	341	(DEH-P4350/X1N/ES)	RS1/16S223J
R	342	(DEH-P4350/X1N/ES)	RS1/16S821J
R	343	(DEH-P4350/X1N/ES)	RS1/16S821J
R	344	(DEH-P4350/X1N/ES)	RS1/16S223J
R	351		RS1/16S821J
R	352		RS1/16S821J
R	353		RS1/16S223J
R	354		RS1/16S223J
R	361		RS1/16S103J
R	362		RS1/16S103J
R	363		RS1/16S331J
R	364		RS1/16S153J
R	365		RD1/4PU182J
R	409		RS1/16S0R0J
R	410		RS1/16S222J
R	411		RS1/16S222J
R	413		RS1/16S473J
R	414		RS1/16S473J
R	415		RS1/16S393J
R	417		RS1/16S681J
R	418		RS1/16S681J
R	419		RS1/16S681J
R	420		RS1/16S103J
R	421		RS1/16S681J

Circuit Symbol and No.	Part Name	Part No.
R 422		RS1/16S473J
R 423		RS1/16S472J
R 424		RS1/16S473J
R 429		RS1/16S681J
R 430		RS1/16S681J
R 431		RS1/16S473J
R 432		RS1/16S473J
R 437		RS1/16S0R0J
R 438		RS1/16S0R0J
R 445		RS1/16S272J
R 446		RS1/16S272J
R 447		RS1/16S162J
R 448		RS1/16S162J
R 454		RS1/16S0R0J
R 510		RD1/4PU221J
R 511		RD1/4PU221J
R 512		RS1/16S472J
R 513		RS1/16S222J
R 514		RS1/16S473J
R 515		RS1/16S473J
R 516		RS1/16S473J
R 517		RS1/16S222J
R 518		RS1/16S222J
R 519		RS1/16S222J
R 520		RS1/16S681J
R 521		RS1/16S102J
R 522		RS1/16S0R0J
R 523		RS1/16S102J
R 524		RS1/16S0R0J
R 528		RD1/4PU0R0J
R 531		RS1/16S0R0J
R 532		RS1/16S0R0J
R 534		RS1/16S0R0J
R 535		RS1/16S0R0J
R 536		RS1/16S0R0J
R 611		RS1/16S473J
R 612		RS1/16S2202F
R 613		RS1/16S102J
R 614		RS1/16S821J
R 615		RS1/16S102J
R 616		RS1/16S0R0J
R 620		RS1/16S473J
R 621		RS1/16S331J
R 622		RS1/16S101J
R 624		RS1/16S104J
R 625		RS1/16S0R0J
R 626		RS1/16S473J
R 627		RS1/16S473J
R 628		RS1/16S473J
R 630		RAB4C102J
R 631		RS1/16S0R0J
R 710		RS1/16S101J
R 711		RS1/16S620J
R 712		RS1/16S101J
R 713		RS1/16S103J
R 714		RS1/16S102J
R 715		RS1/16S102J
R 716		RS1/16S473J
R 717		RS1/16S473J
R 718		RS1/16S102J
R 719		RS1/16S102J
R 720		RS1/16S223J
R 721		RS1/16S223J
R 722		RS1/16S821J
R 723		RS1/16S821J
R 724		RS1/16S222J
R 725		RS1/16S223J
R 726		RS1/16S472J
R 750		RS1/16S104J
R 751		RS1/16S103J
R 752		RS1/16S153J
R 753		RS1/16S153J
R 754		RS1/16S222J
R 756		RS1/16S433J
R 757		RS1/16S473J
R 758		RS1/16S102J
R 759		RD1/4PU222J
R 760		RS1/16S102J
R 763		RS1/16S222J
R 764		RS1/16S131J
R 765		RS1PMF390J
R 766		RS1/10S270J
R 767		RS1/16S103J
R 768		RS1/16S152J
R 769		RS1/16S152J
R 771		RS1/16S473J
R 773		RD1/4PU222J
R 774		RS1/16S102J
R 775		RS1/16S102J
R 776		RS1/16S220J
R 777		RS1/16S0R0J
R 778		RS1/16S103J
R 779		RS1/16S472J
R 781		RS1/16S104J
R 782		RS1/16S131J
R 783		RS1/16S131J
R 784		RS1/10S392J
R 786		RS1/16S102J
R 787		RS1/10S472J
R 788		RS1/10S222J
R 789		RS1/10S222J
R 909		RD1/4PU0R0J
R 910		RS1/16S0R0J
R 911		RD1/4PU121J
R 912		RS1/16S102J
R 913		RD1/4PU102J
R 914		RS1/16S103J
R 915		RS1/16S222J
R 916		RS1/16S133J
R 917		RS1/16S104J
R 918		RS1/16S104J
R 919		RS1/16S223J
R 920		RS1/16S473J
R 921		RS1/16S103J
R 922		RS1/16S473J
R 923		RD1/4PU102J
R 924		RS1/16S472J
R 927		RS1/16S102J
R 928		RS1/16S473J
R 929		RS1/16S104J
R 930		RS1/16S103J
R 931		RS1/16S103J
R 932		RD1/4PU102J
R 933		RS1/16S473J
R 934		RS1/16S103J
R 935		RS1/16S223J
R 936		RD1/4PU152J

CAPACITORS

Circuit Symbol and No.	Part Name	Part No.
C 310		CKSRYB102K50
C 311		CEJA1R0M50
C 312		CEJA1R0M50
C 314		CKSRYB105K6R3
C 315		CKSRYB105K6R3
C 316		CKSRYB104K16
C 317		CKSRYB104K16
C 318		CKSRYB105K6R3
C 319		CKSRYB105K6R3
C 320		CKSRYB105K6R3

=====Circuit Symbol and No.		===Part Name	Part No.
C	321		CKSRYB105K6R3
C	325		CKSRYB102K50
C	326		CEJA100M16
C	328		CKSRYB104K16
C	329		CEJA470M10
C	342	(DEH-P4350/X1N/ES)	CEJA2R2M50
C	343	(DEH-P4350/X1N/ES)	CEJA2R2M50
C	351		CEJA2R2M50
C	352		CEJA2R2M50
C	361	4700µF/16V	CCH1367
C	362		CKSQYB104K16
C	363		CKSQYB474K16
C	364		CKSQYB474K16
C	365		CKSQYB474K16
C	366		CKSQYB474K16
C	367		CKSQYB474K16
C	368		CKSQYB474K16
C	369		CKSQYB474K16
C	370		CKSQYB474K16
C	371		CEJA330M10
C	373		CKSQYB225K10
C	374		CKSQYB225K10
C	375		CEJA100M16
C	410		CKSQYB103K50
C	412		CKSRYB223K25
C	413		CKSRYB102K50
C	414		CEJA220M10
C	415		CKSRYB223K25
C	418		CEAL101M10
C	419		CKSRYB473K16
C	424		CKSRYB183K25
C	425		CKSRYB183K25
C	431		CKSRYB102K50
C	510		CKSRYB473K16
C	511		CKSRYB102K50
C	512		CEJA101M16
C	615		CEAL2R2M50
C	616		CCSRCH270J50
C	617		CCSRCH330J50
C	618		CKSRYB105K6R3
C	619		CEAL4R7M35
C	620		CKSRYB103K50
C	621		CCSRCH101J50
C	624		CKSRYB223K25
C	629		CCSRCH101J50
C	630		CKSRYB103K50
C	631		CCSRCH101J50
C	632		CCSRCH101J50
C	633		CKSRYB103K50
C	634		CKSRYB472K50
C	710		CKSRYB104K16
C	711		CKSRYB473K16
C	712		CEJA1R0M50
C	713		CEJA1R0M50
C	714		CEJA1R0M50
C	715		CEJA1R0M50
C	750		CKSRYB103K25
C	751		CKSQYB104K16
C	765		CKSQYB103K50
C	799		CKSQYB473K50
C	910	330µF/16V	CCH1326
C	911		CKSRYB103K25
C	912		CEJA101M16
C	913		CEJA101M10
C	914		CKSRYB473K16
C	915		CKSRYB103K25
C	916	470µF/16V	CCH1331
C	920		CKSRYB104K16

=====Circuit Symbol and No.		===Part Name	Part No.

C Unit Number : CWM7398(DEH-P4350/X1N/ES)
Unit Number : CWM7405(DEH-P3350/X1N/ES)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1902	IC(DEH-P4350/X1N/ES)	SBX8035-H
IC	1903	IC	PD6294A
Q	1905	Transistor	DTC114EU
D	1901	Chip Diode	MA151WK
D	1902	Chip Diode	MA151WA
D	1903	LED(DEH-P4350/X1N/ES)	CL170UBX
		LED(DEH-P3350/X1N/ES)	CL170PGCD
D	1917	LED	NSSW440-9159
D	1918	LED	NSSW440-9159
X	1901	Radiator 5.00MHz	CSS1423
S	1901	Push Switch	CSG1112
S	1902	Push Switch	CSG1112
S	1903	Push Switch	CSG1112
S	1904	Push Switch	CSG1112
S	1905	Switch	CSG1107
S	1906	Push Switch	CSG1112
S	1908	Switch	CSG1107
S	1909	Switch	CSG1107
S	1910	Switch	CSG1107
S	1911	Switch	CSG1107
S	1912	Switch	CSG1107
S	1913	Switch	CSG1107
S	1914	Switch	CSG1107
S	1915	Switch	CSG1107
S	1916	Push Switch	CSG1112
S	1917	Push Switch	CSG1112
S	1918	Push Switch	CSG1112
S	1919	Push Switch	CSG1112
S	1920	Push Switch	CSG1111
S	1922	Switch	CSD1061
		LCD(DEH-P4350/X1N/ES)	CAW1626
		LCD(DEH-P3350/X1N/ES)	CAW1628

RESISTORS

R	1900	(DEH-P3350/X1N/ES)	RS1/16S473J
R	1901		RS1/10S222J
R	1902		RS1/10S222J
R	1903		RS1/16S470J
R	1904		RS1/16S470J
R	1905	(DEH-P4350/X1N/ES)	RS1/16S121J
R	1906	(DEH-P4350/X1N/ES)	RS1/16S2R2J
R	1909	(DEH-P4350/X1N/ES)	RS1/16S151J
		(DEH-P3350/X1N/ES)	RS1/16S201J
R	1910		RS1/16S121J
R	1911		RS1/16S121J
R	1912		RS1/16S121J
R	1913		RS1/16S121J
R	1914		RS1/16S121J
R	1915		RS1/16S121J
R	1916		RS1/16S121J
R	1917		RS1/16S131J
R	1918		RS1/16S151J
R	1919		RS1/16S131J
R	1920		RS1/16S131J
R	1927		RS1/16S472J
R	1929		RS1/16S0R0J
R	1930		RS1/16S101J
R	1931		RS1/16S101J
R	1933	(DEH-P4350/X1N/ES)	RS1/16S161J
		(DEH-P3350/X1N/ES)	RS1/16S201J
R	1935		RS1/16S393J
R	1936		RS1/16S131J
R	1938		RS1/16S151J
R	1939		RS1/16S131J
R	1941		RS1/16S131J

=====Circuit Symbol and No.		===Part Name	Part No.
R	1942		RS1/16S131J
R	1943		RS1/16S131J
R	1945		RS1/16S121J
R	1946		RS1/16S0R0J
R	1949		RS1/16S151J

CAPACITORS

C	1902		CKSRYB104K16
C	1903	(DEH-P4350/X1N/ES)	CSZS100M6R3
C	1905		CKSRYB104K16
C	1906		CKSRYB104K16
C	1907		CKSRYB104K16
C	1923		CKSQYB104K16
C	1924	(DEH-P4350/X1N/ES)	CKSRYB104K16
C	1930		CKSQYB104K16

C Unit Number : CWM7681(DEH-P3350B/X1N/ES)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1903	IC	PD6294A
Q	1905	Transistor	DTC114EU
D	1901	Chip Diode	MA151WK
D	1902	Chip Diode	MA151WA
D	1903	LED	CL170SRCD
D	1913	LED	NSSW440-9159
D	1914	LED	NSSW440-9159
D	1915	LED	NSSW440-9159
D	1916	LED	NSSW440-9159
X	1901	Radiator 5.00MHz	CSS1423
S	1901	Push Switch	CSG1135
S	1902	Push Switch	CSG1135
S	1903	Push Switch	CSG1135
S	1904	Push Switch	CSG1135
S	1905	Push Switch	CSG1133
S	1906	Push Switch	CSG1135
S	1908	Push Switch	CSG1133
S	1909	Push Switch	CSG1133
S	1910	Push Switch	CSG1133
S	1911	Push Switch	CSG1133
S	1912	Push Switch	CSG1133
S	1913	Push Switch	CSG1133
S	1914	Push Switch	CSG1133
S	1915	Push Switch	CSG1133
S	1916	Push Switch	CSG1135
S	1917	Push Switch	CSG1135
S	1918	Push Switch	CSG1135
S	1919	Push Switch	CSG1135
S	1920	Push Switch	CSG1111
S	1922	Switch	CSD1061
		LCD(DEH-P3350B/X1N/ES)	CAW1679

RESISTORS

R	1900		RS1/16S473J
R	1901		RS1/10S222J
R	1902		RS1/10S222J
R	1903		RS1/16S470J
R	1904		RS1/16S470J
R	1909		RS1/16S221J
R	1910		RS1/16S161J
R	1911		RS1/16S161J
R	1912		RS1/16S161J
R	1913		RS1/16S161J
R	1914		RS1/16S161J
R	1915		RS1/16S161J
R	1916		RS1/16S161J
R	1917		RS1/16S131J
R	1918		RS1/16S151J

=====Circuit Symbol and No.		===Part Name	Part No.
R	1919		RS1/16S131J
R	1920		RS1/16S131J
R	1927		RS1/16S472J
R	1929		RS1/16S0R0J
R	1930		RS1/16S101J
R	1931		RS1/16S101J
R	1933		RS1/16S201J
R	1935		RS1/16S393J
R	1937		RS1/16S151J
R	1938		RS1/16S151J
R	1941		RS1/16S131J
R	1944		RS1/16S151J
R	1945		RS1/16S0R0J
R	1946		RS1/16S0R0J
R	1949		RS1/16S151J

CAPACITORS

C	1902		CKSRYB104K16
C	1905		CKSRYB104K16
C	1906		CKSRYB104K16
C	1907		CKSRYB104K16
C	1921		CKSQYB104K16
C	1922		CKSQYB104K16
C	1925		CKSQYB104K16
C	1926		CKSQYB104K16

B Unit Number : CWM7375
Unit Name : Panel Unit

MISCELLANEOUS

D	1950	LED	CL220PGC
S	1950	Push Switch	CSG1112

RESISTORS

R	1952		RS1/16S101J
R	1953		RS1/16S101J

D Unit Number : CWX2411
Unit Name : Control Unit

MISCELLANEOUS

IC	201	IC	UPD63711GC
IC	301	IC	BA5985FM
IC	701	IC	BA05SFP
Q	101	Transistor	2SB1132
D	801	Chip LED	CL203IRXTU
D	802	Chip LED	CL203IRXTU
X	201	Ceramic Resonator 16.934MHz	CSS1456
S	801	Spring Switch(HOME)	CSN1051
S	802	Spring Switch(CLAMP)	CSN1052

RESISTORS

R	101		RS1/8S120J
R	102		RS1/8S100J
R	103		RS1/16S222J
R	201		RS1/16S104J
R	202		RS1/16S103J
R	203		RS1/16S393J
R	204		RS1/16S103J
R	205		RS1/16S103J
R	206		RS1/16S182J
R	207		RS1/16S123J
R	302		RS1/16S153J
R	303		RS1/16S103J
R	501		RS1/16S102J
R	502		RA4C681J
R	601		RS1/16S102J

=====Circuit Symbol and No.		===Part Name	Part No.
R	602		RS1/16S102J
R	605		RS1/16S0R0J
R	606		RS1/16S0R0J
R	801		RS1/8S751J
R	803		RS1/8S751J
R	902		RS1/16S0R0J
R	906		RS1/16S0R0J

CAPACITORS

C	101		CKSRYB102K50
C	102		CKSRYB104K16
C	103		CEV101M6R3
C	104		CEV470M6R3
C	105		CKSQYB334K16
C	106		CKSQYB334K16
C	107		CKSQYB334K16
C	201		CKSRYB104K16
C	202		CKSRYB471K50
C	203		CKSRYB104K16
C	205		CEV101M6R3
C	206		CKSRYB104K16
C	207		CKSRYB104K16
C	208		CKSRYB104K16
C	209		CKSRYB104K16
C	210		CKSRYB332K50
C	211		CKSRYB104K16
C	212		CKSRYB104K16
C	213		CKSRYB392K50
C	214		CKSRYB104K16
C	215		CKSRYB104K16
C	216		CCSRCJ3R0C50
C	217		CCSRCH270J50
C	218		CKSRYB104K16
C	219		CCSRCH181J50
C	220		CCSRCH510J50
C	221		CKSRYB682K25
C	222		CEV220M6R3
C	223		CKSRYB103K25
C	224		CKSRYB224K10
C	301		CEV101M10
C	603		CCSQSL152J50
C	604		CCSQSL152J50
C	702	10µF/10V	CCH1349
C	703		CKSQYB334K16

=====Circuit Symbol and No.		===Part Name	Part No.

E Unit Number :
Unit Name : Photo Unit(S8)

Q	1	Photo-transistor	CPT230SX-TU
Q	2	Photo-transistor	CPT230SX-TU

Miscellaneous Parts List

		Pickup Unit(Service)(P8)	CXX1285
M	1	Motor Unit(CARRIAGE)	CXB2190
M	2	Motor Unit(LOADING)	CXB2195
M	3	Motor Unit(SPINDLE)	CXB2562

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
  If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit.Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
  *During PLAY, even if the eject button is pressed,the disc will not be ejected and the unit will remain in the PLAY mode.
  *The unit will not load a disc.
  When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
  Reset while pressing the 4 and 6 keys together.

- Test mode cancellation
  Switch ACC, back-up OFF.

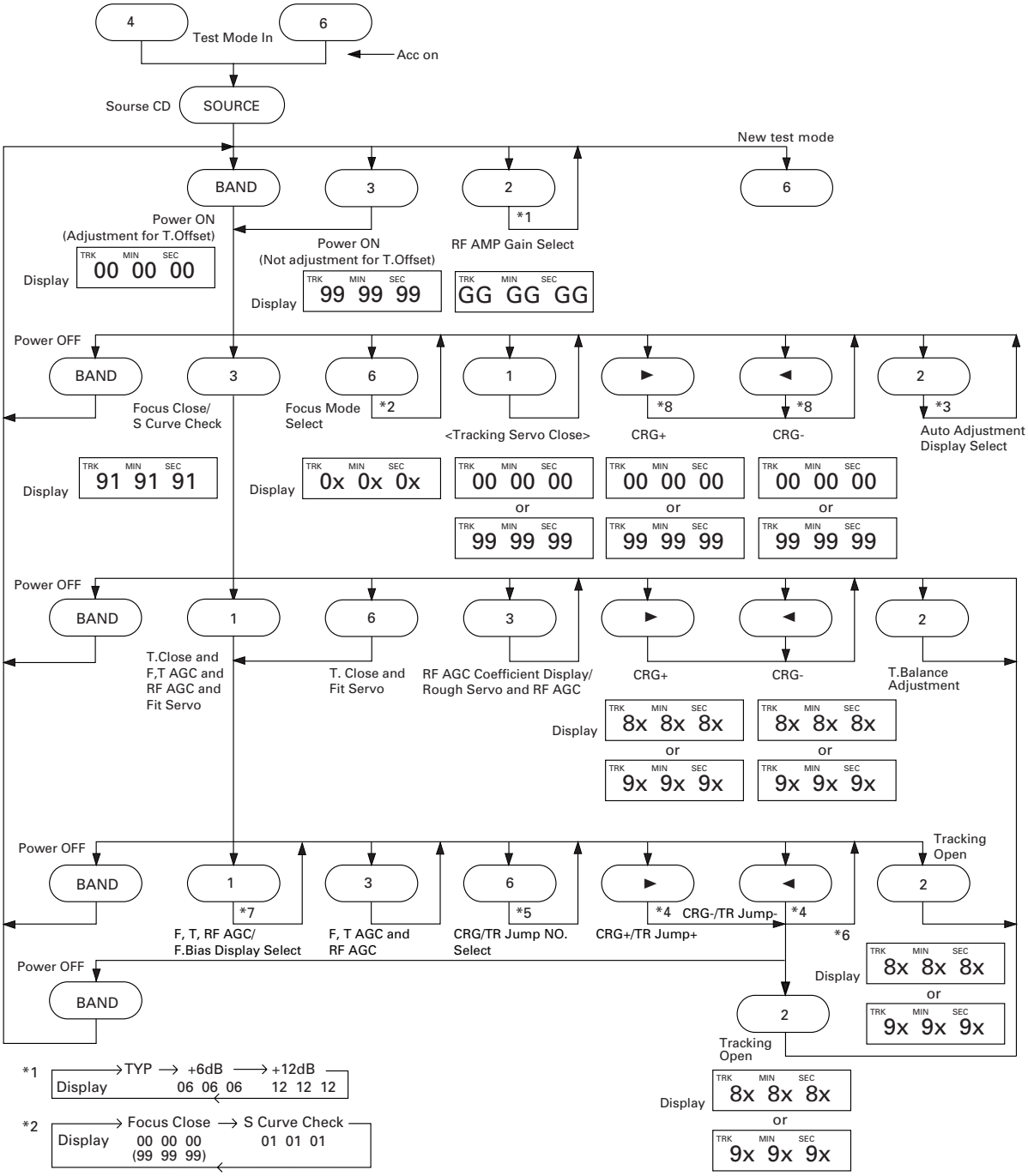
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.

- If the ► or ◄ key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).

- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the “Tracking close” status when the key is released.

- Powering Off/On resets the jump mode to “Single TR (91)”, the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.

● Flow Chart


4
Test Mode In
6
Acc on
Sourse CD
SOURCE
New test mode
BAND
3
2
6
*1
Power ON
(Adjustment for T.Offset)
Display
TRK MIN SEC
00 00 00
Power ON
(Not adjustment for T.Offset)
RF AMP Gain Select
Display
99 99 99
GG GG GG
Power OFF
BAND
3
6
1
►
◄
2
Focus Close/
S Curve Check
Focus Mode
Select
*2
*8
*8
*3
<Tracking Servo Close>
CRG+
CRG-
Auto Adjustment
Display Select
Display
91 91 91
Display
0x 0x 0x
00 00 00
or
99 99 99
Power OFF
BAND
1
6
3
►
◄
2
T.Close and
F,T AGC and
RF AGC and
Fit Servo
T. Close and
Fit Servo
RF AGC Coefficient Display/
Rough Servo and RF AGC
CRG+
CRG-
T.Balance
Adjustment
Display
8x 8x 8x
or
9x 9x 9x
Power OFF
Tracking
Open
BAND
1
3
6
►
◄
2
*7
*5
*4
CRG-/TR Jump-
*4
*6
F, T, RF AGC/
F.Bias Display Select
F, T AGC and
RF AGC
CRG/TR Jump NO.
Select
CRG+/TR Jump+
Power OFF
BAND
Display
8x 8x 8x
or
9x 9x 9x
2
Tracking
Open
Display
8x 8x 8x
or
9x 9x 9x
*1 → TYP → +6dB → +12dB
Display 06 06 06 12 12 12
*2 → Focus Close → S Curve Check
Display 00 00 00 (99 99 99) 01 01 01
*3 → F.Offset Display → RF.Offset Display → F.Cansel Display
F.Cancel Value = {Top Rank 8bit of Set Value (7F [H] to 80 [H]) + 128} / 4
= 63 [D] to (32 [D]) to 00 [D]
*4 Single TR/32TR/100TR
*5 → Single TR → 32TRK → 100TRK → CRG Move
Display 9x(8x):91(81) 92(82) 93(83) 94(84)
*6 CRG Move, 100TR Jump Only
*7 → TRK, MIN, SEC → F.AGC Gain → T.AGC Gain → RF AGC Gain
(F,T.AGC Gain = (Present Value/Initial Value) x 20)
*8 Voltage of CRG Motor = 2 [V]

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

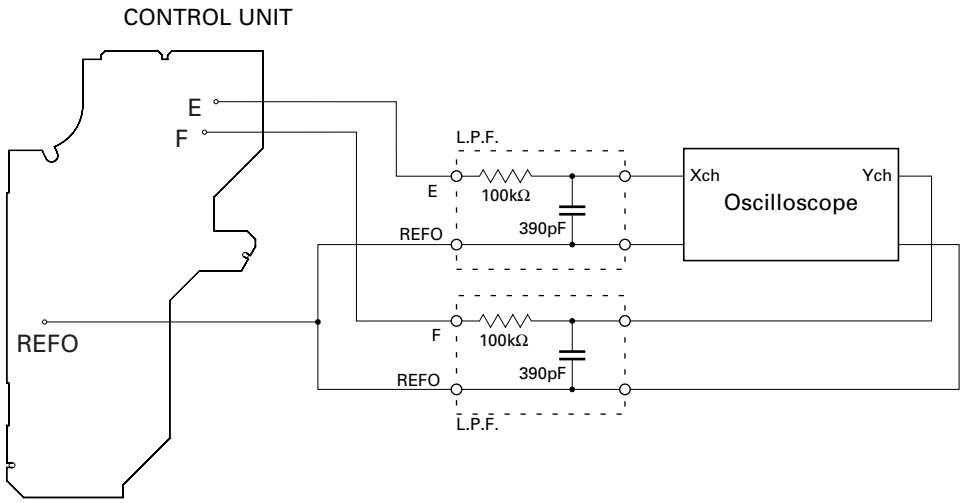
• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, REFO
• Disc	• ABEX TCD-784
• Mode	• TEST MODE



• **Checking Procedure**
1. In test mode, load the disc and switch the 5V regulator on.
2. Using the ► and ◄ buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 2 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

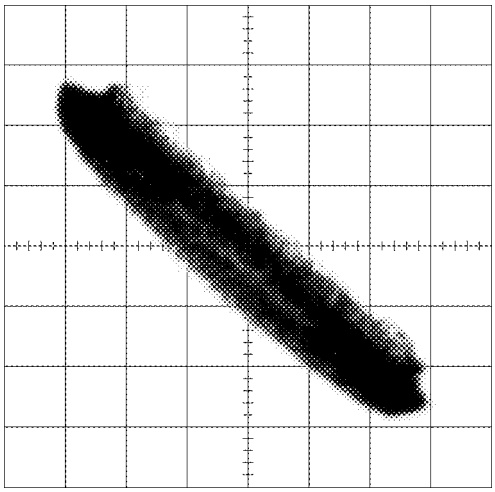
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

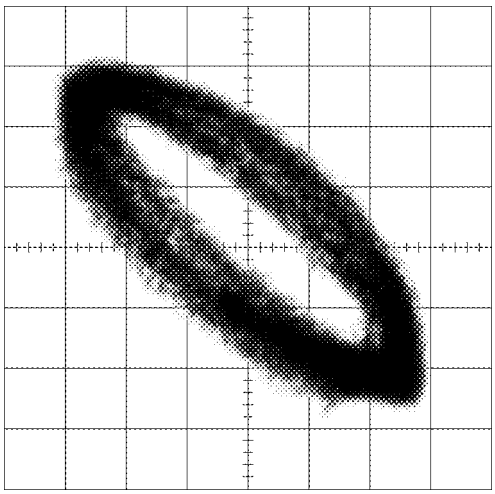
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

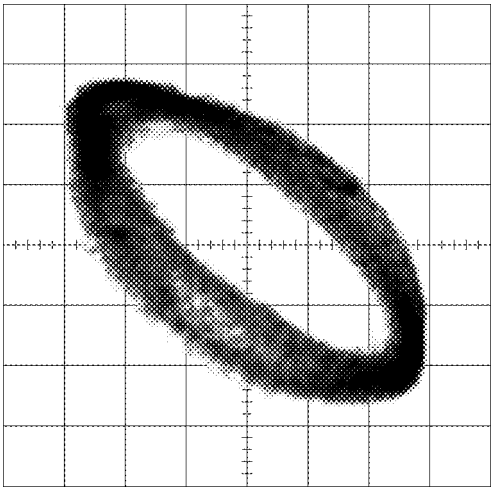
0°



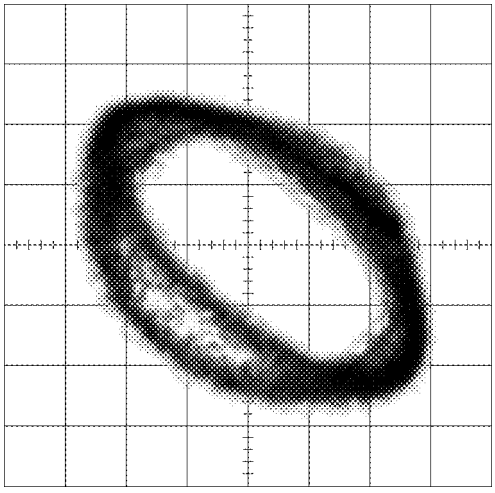
30°



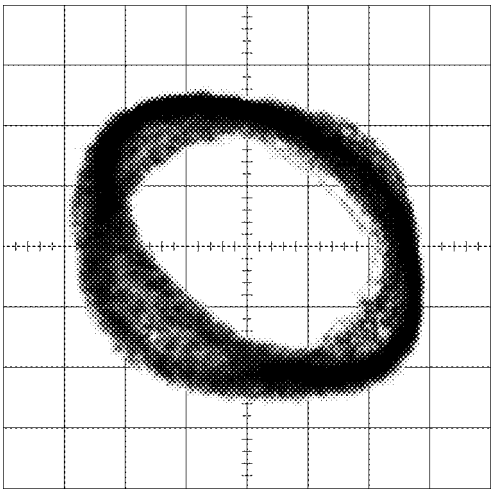
45°



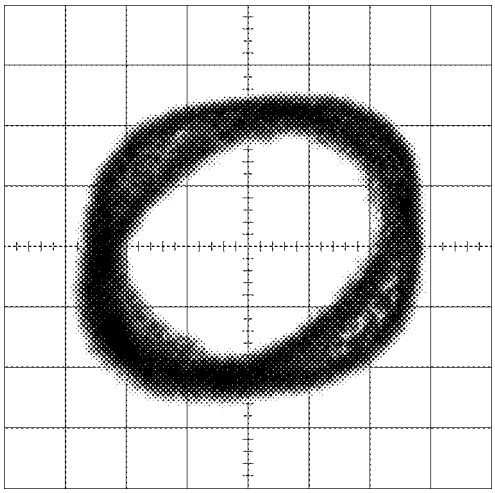
60°



75°



90°



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE

● Error Messages

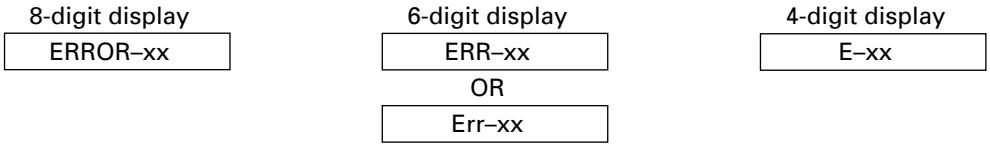
If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Main unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.



(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations.
		Subcode NG	A disc not containing CD-R data is found. Turned over disc are found, though rarely. → Failure on home switch or CRG move mechanism.
		RF AMP NG	An appropriate RF AMP gain can't be determined. → CD signal error.
17	Electricity	Setup NG	APC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).
Unreadable TOC does not constitute an error. An intended operation continues in this case.
A newly designed main unit must conform to the example given above.
Upper digits of an error code are subdivided as shown below:
1x: Setup relevant errors, 3x: Search relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software (internal RAM: CPOINT) is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

① Turn on the current test mode.

② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [6] key while maintaining the regulator turned off.

③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off. You can reset the new test mode by turning on the reset start.

* With some products, the new test mode can be reset through the same operations as that employed for shifting to the STBY mode (while maintaining the Acc turned off).

(2) Key Correspondence

Key	Test mode		New test mode	
	Power Off	Power On	In-play	Error Production
BAND	To power on (offset adjustment performed)	To power off	–	Time/Err.No. switching
►	–	FWD-Kick	FF/TR+	–
◄	–	REV-Kick	REV/TR-	–
1	–	T.Close (AGC performed) /parameter display switching	Scan	–
2	RF AMP gain switching	Parameter display switching /T.BAL adjustment/T.Open	Mode	–
3	To power on (offset adjustment not performed)	F.Close/RF AGC/F.T.AGC	–	–
6	–	F.Mode switching /T.Close (no AGC)/Jump switching	Auto/Manu	T.No./Time switching

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	FOK = Low continued for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

The error codes should be indicated in the same way as in the normal mode.

(4) Display of Operational Status (CPOINT) during Setup

Status No.	Contents	Protective action
00	CD+5V ON process in progress.	None
01	Servo LSI initialization (1/3) in progress.	None
02	Servo LSI CRAM initialization in progress.	None
03	Servo LSI initialization (2/3) in progress.	None
04	Offset adjustment (1/3) in progress.	None
05	Offset adjustment (2/3) in progress.	None
06	Offset adjustment (3/3) in progress.	None
07	FZD adjustment in progress.	None
08	Servo LSI initialization (3/3) in progress.	None
10	Carriage move to home position started.	None
11	Carriage move to home position started.	None
12	Carriage is moving toward inner diameter.	Specified 10 seconds has been passed or failure on home switch.
13	Carriage is moving toward outer diameter.	Specified 10 seconds has been passed or failure on home switch.
14	Carriage outer kick in progress.	None
15	Carriage outer diameter feed (1 second) in progress.	None
20	Servo close started.	None
21	Pre-processing for focus search started.	None
22	Spindle rotation and focus search started.	None
23	Waiting for focus close (XSI=Low).	Specified focus search time has been passed.
24	Standing by after focus close is over.	Specified focus search time has been passed.
25	Focus search preprocessing is in progress while setup protection is turned on.	None
26	Focus search preprocessing is in progress while focus recovery is turned on.	None
27	Wait time after focus close is set up.	Off focus.
28	Standing by after focus close is over.	Off focus.
29	Setup (1/2) before T balance adjustment is started.	Off focus.
30	Setup (2/2) before T balance adjustment is started.	Off focus.
31	T balance adjustment started.	Off focus.
32	T balance adjustment (1/2).	Off focus.
33	T balance adjustment (2/2).	Off focus.
34	Waiting for spindle rotation to end. Spindle rough servo.	Off focus.
35	Standing by after spindle rough servo is over.	Off focus.
36	RF AGC started.	Off focus.
37	RF AGC started.	Off focus.
38	RF AGC ending process in progress.	Off focus.
39	Tracking close in progress.	Off focus.
40	Standing by after tracking is closed. Carriage closing in progress.	Off focus.
41	Focus/tracking AGC started.	Off focus.
42	Focus AGC started.	Off focus.
43	Focus AGC in progress.	Off focus.
44	Tracking AGC in progress.	Off focus.
45	Standing by after focus/tracking AGC are over.	Off focus.
46	Spindle processes applicable servo.	Off focus.
47	Check for servo close is started.	Off focus.
48	Check of LOCK pin started.	Off focus or spindle not locked.
49	RF AGC started.	Off focus.
50	RF AGC in progress.	Off focus.
51	Standing by after RF AGC is over.	Off focus.

(5) Display Examples

1) During Setup (When status no. = 11)

TRK No.	MIN.	SEC.
11	11'	11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

Switch to the following displays (A) and (B) using the [BAND] switch:

(A) Error occurrence timing display in absolute time.

An example: Error occurred in 12th tune at 34'56" in absolute time.

TRK No.	MIN.	SEC.
12	34'	56"

(B) Error No. display

An example: Error #40 (Off focus is detected)

ERROR-40

7.1.2 DISASSEMBLY

● **Removing the Case (not shown)**

1. Remove the Case.

● **Removing the CD Mechanism Module (Fig.1)**

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● **Removing the Grille Panel Assy (Fig.1)**

2 Remove the two screws and then remove the Grille Panel Assy.

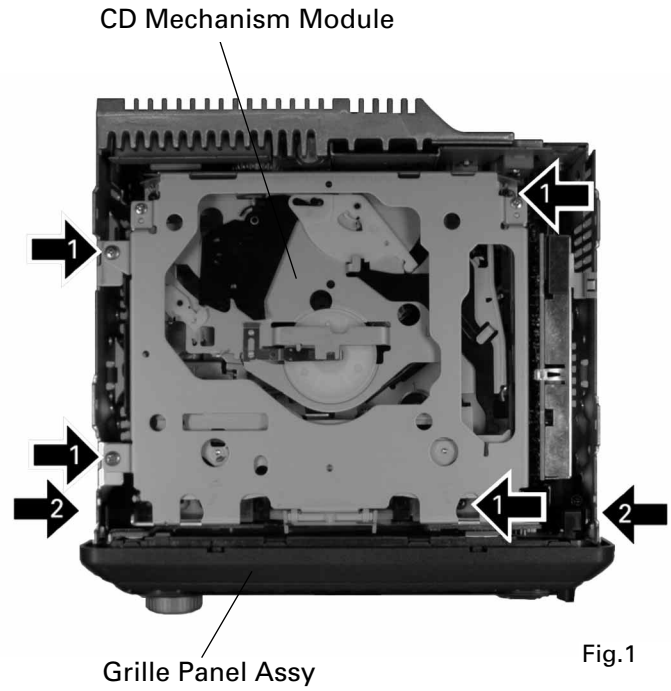


Fig.1

● **Removing the Tuner Amp Unit (Fig.2)**

1 Remove the two screws.

2 Straight the tabs at three locations indicated.

3 Remove the screw.

4 Remove the three screws and then remove the Tuner Amp Unit.

*) Tuner Amp Unit is different partially from this photo.

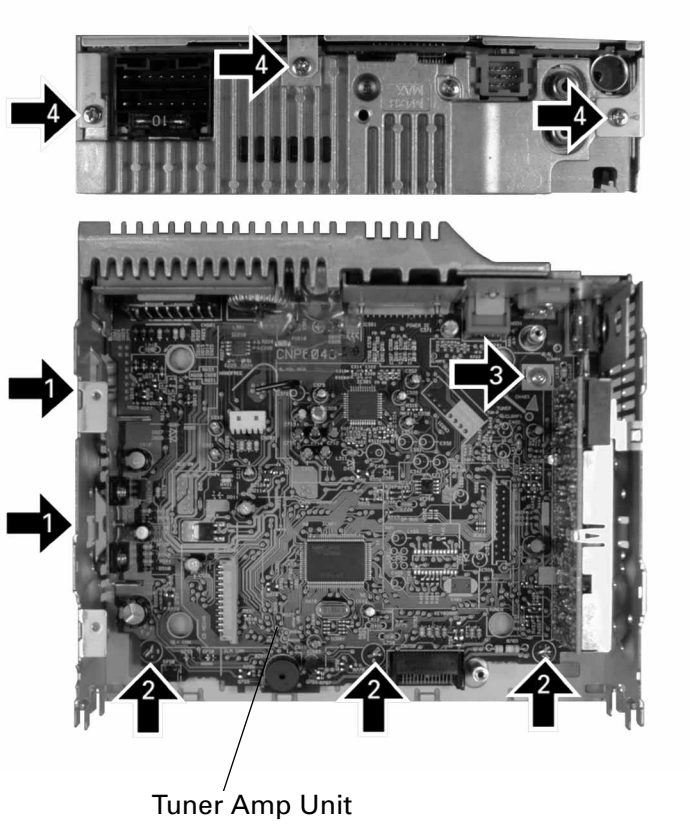
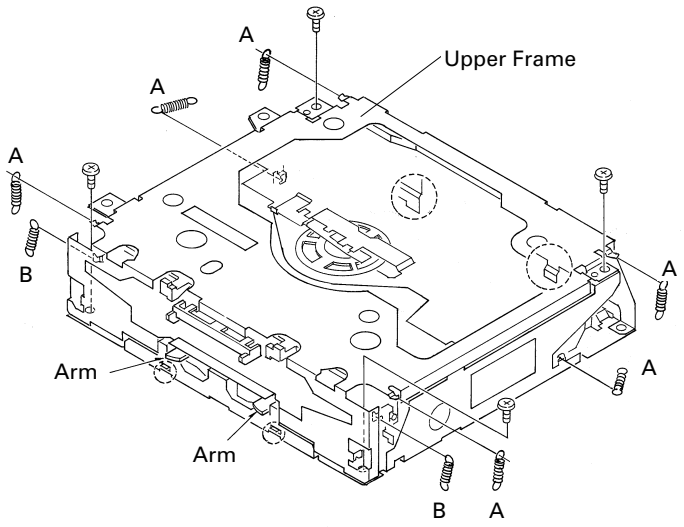


Fig.2

● Removing the Upper Frame

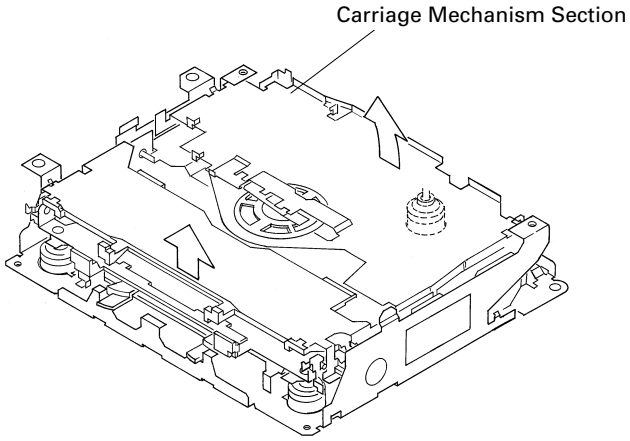
1. Remove six Springs A, two Springs B and four Screws.
2. Remove two Tabs situated on rear side of the Upper Frame, remove two Arms on the front side, then remove two Tabs on the front side.



● Removing the Carriage Mechanism

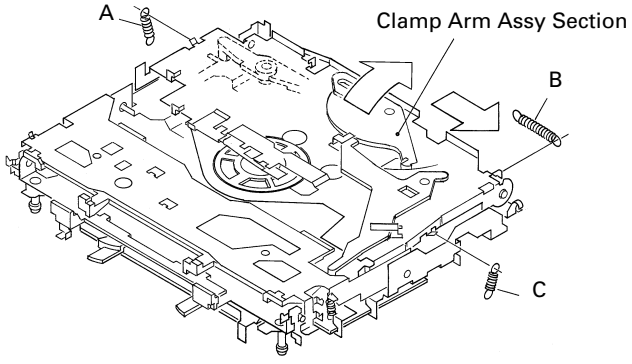
1. Disengage the Carriage Mechanism from the two dampers situated in the front side by driving it up, then disengage and remove the mechanism from the two dampers by driving it up aslant into front side direction.

Note : When assembling the Carriage Mechanism, coat the dampers with alcohol prior to the assembly.



● Removing the Clamp Arm Assy

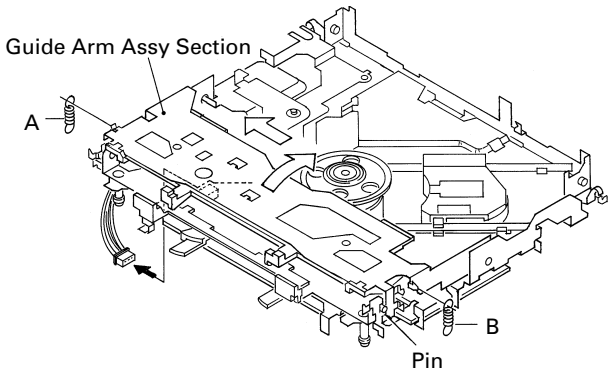
1. Remove a Spring A, a B and a Spring C.
2. Drive the Clamp Arm Assy up into rear side direction, then disengage the arm from its current position Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward right side to remove it.



● Removing the Guide Arm Assy

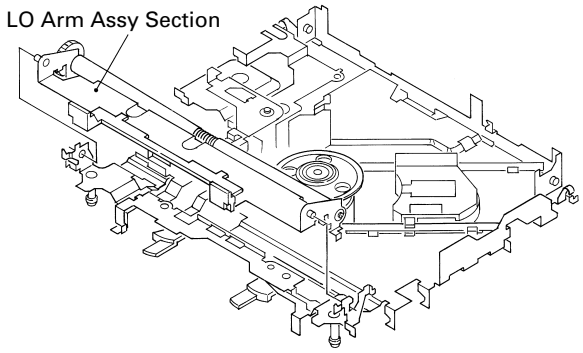
1. Remove a connector, a spring A and B
2. Drive the Guide Arm Assy up aslant into rear side direction, then remove it from a Pin. Finally, drive the assembly approximately 45 degrees upward, then slide the assembly toward left side to remove it.

Note : When assembling the guide arm assembly, route the cord inside the assembly. In this operation, care must be exercised so that cord may be caught by the gear.



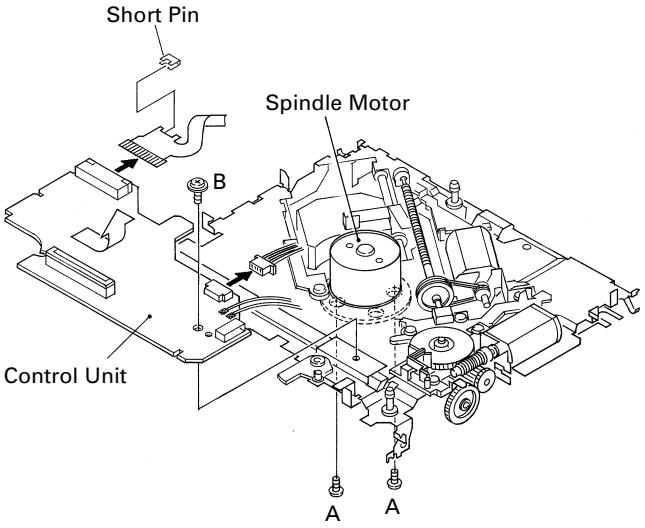
● Removing the LO Arm Assy

1. Remove two Pins to dismount the LO Arm Assy.



● Removing the Control Unit and the Spindle Motor

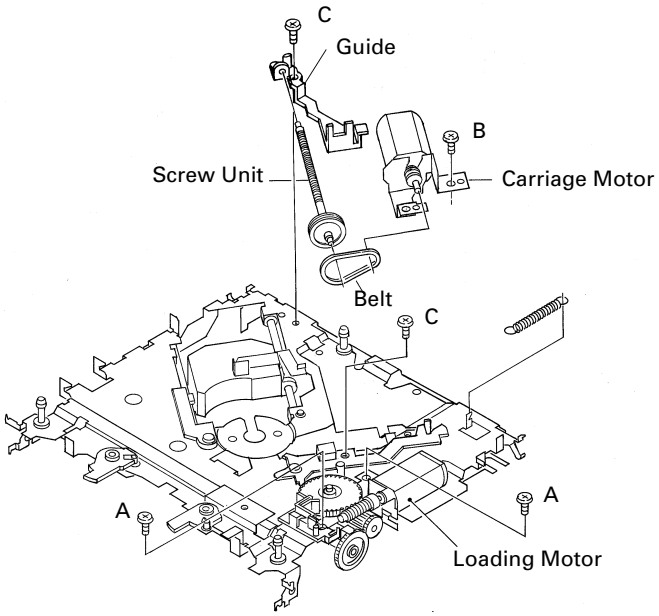
1. Remove from the connector after mounting the short pin on the flexible PCB of the pickup unit.
2. Remove two Soldered joints, then remove two Screws A.
3. Remove two connectors and a Screw B.
4. Disengage the Control Unit from two Tabs, then dismount the unit by sliding it toward left.
5. Dismount the Spindle Motor.



● Removing the Loading Motor and Carriage Motor

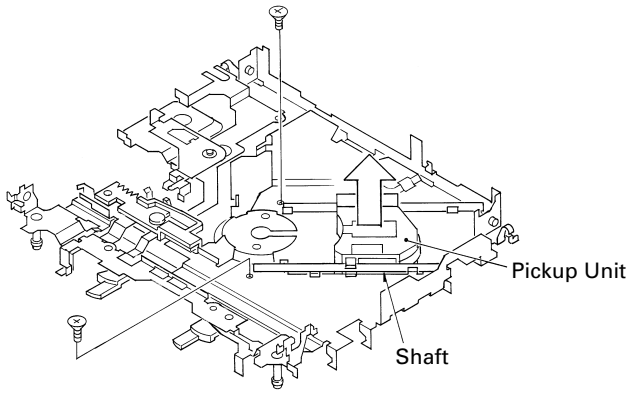
1. Remove the Spring and two Screws A.
2. Dismount the Loading Motor.
3. Remove the Belt, a Screw B, two Screws C, a Guide and a Screw Unit.
4. Dismount the Carriage Motor.

Note : When assembling the Belt, use care so that it may not be contaminated by grease.

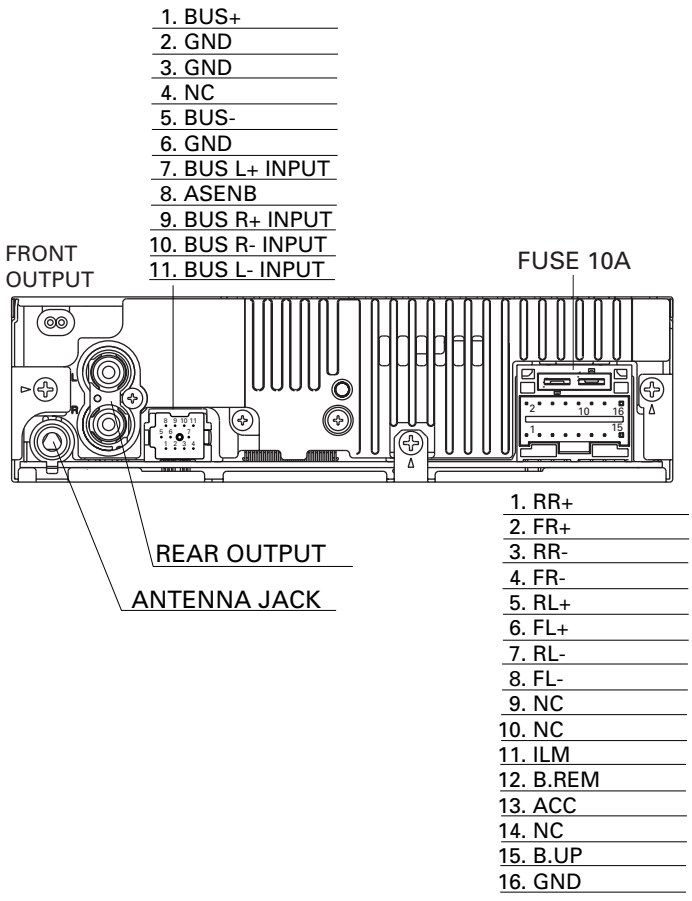


● Removing the Pickup Unit

1. Remove two Screws and a Shaft.
2. Dismount the Pickup Unit.



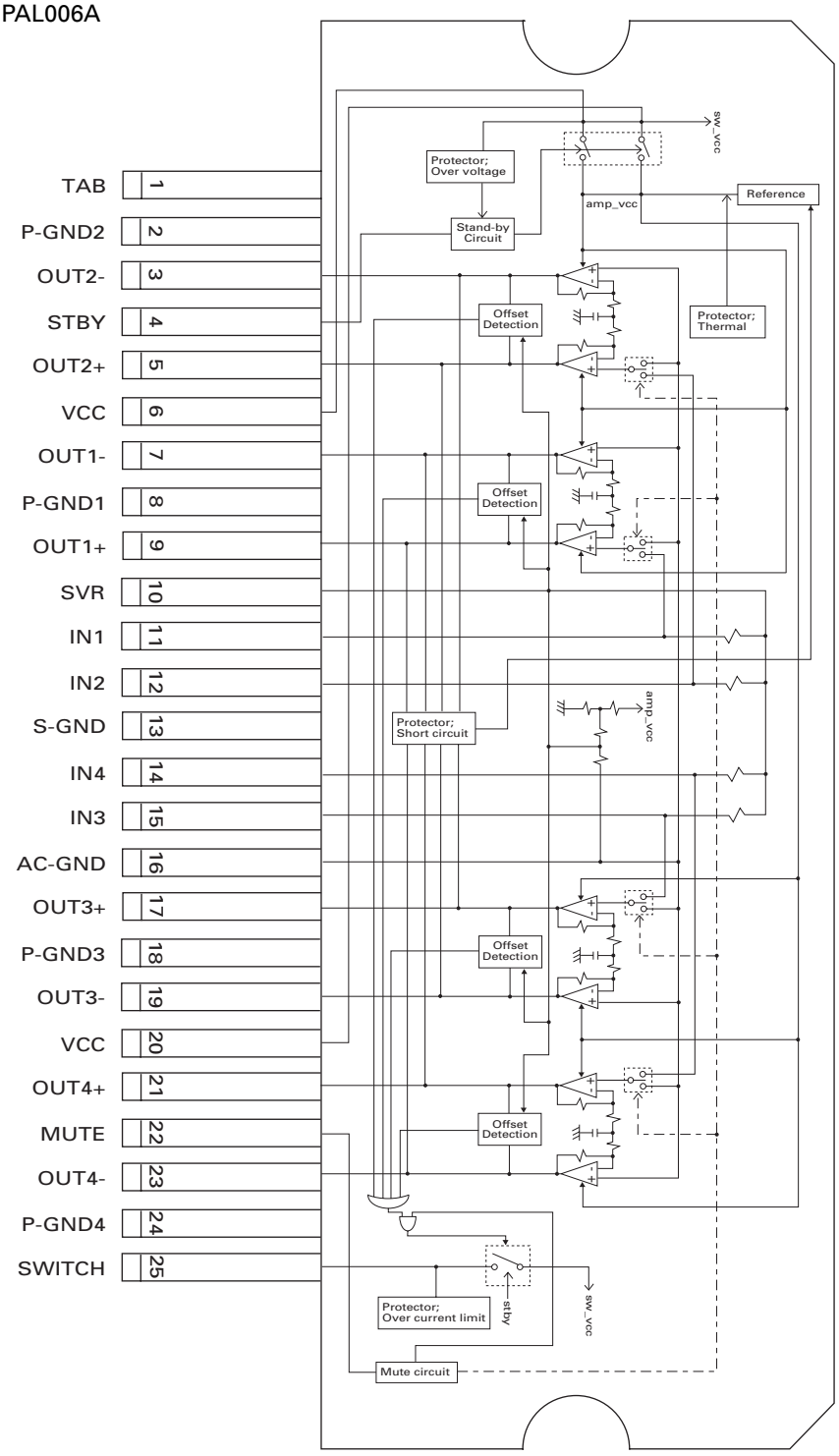
7.1.3 CONNECTOR FUNCTION DESCRIPTION



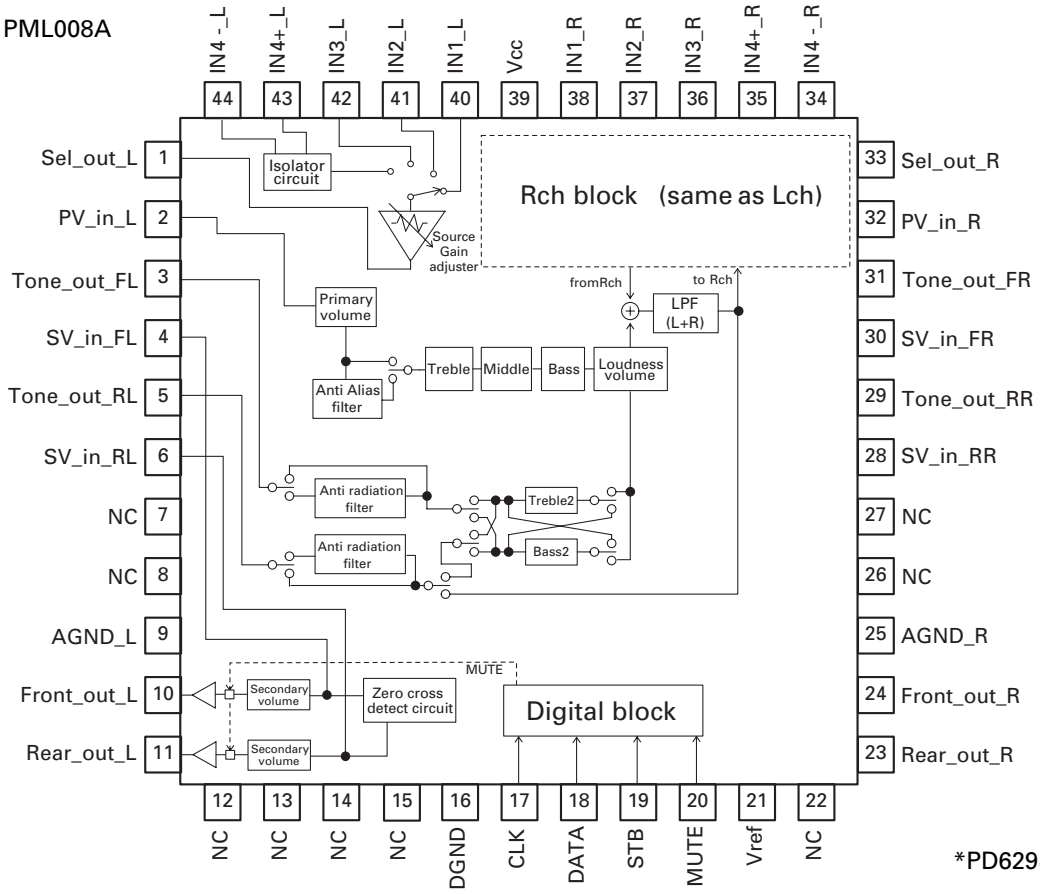
7.2 PARTS

7.2.1 IC

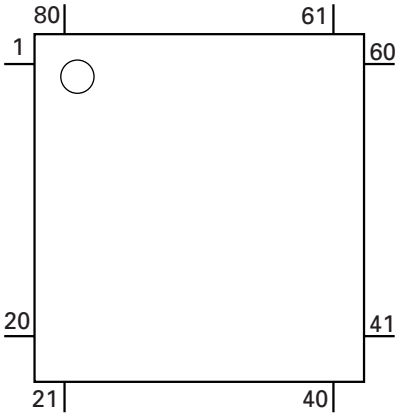
PAL006A



PML008A



*PD6294A



IC's marked by* are MOS type.
Be careful in handing them because they are very liable to be damaged by electrostatic induction.

● Pin Functions (PD6294A)

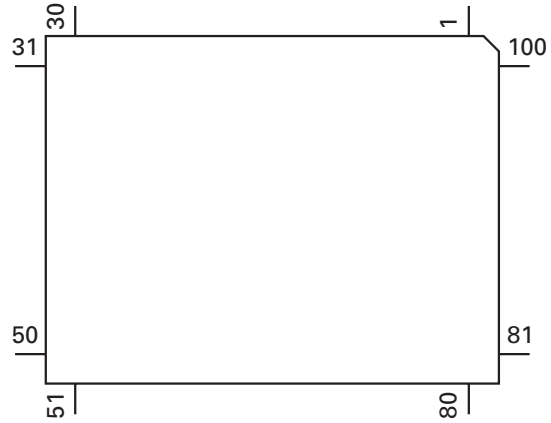
Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	X1		Crystal oscillator connection pin
3	X0		Crystal oscillator connection pin
4	NC		Not used
5,6	MOD1,0	I	Connect to GND
7	DIMMER	O	Dimmer select output
8	KYDT	O	Key data output
9	DPDT	I	Display data input
10	REMIN	I	Remote control pulse input
11	GRN		Dual Illumination (Green)
12	AMB		Dual Illumination (Amber)
13–16	KD4–1	I	Key data input
17-22	KST6–1	O	Key strobe output
23	VDD		VDD
24-73	SEG49–0	O	LCD segment output
74–77	COM3–0	O	LCD common output
78	VLCD	I	LCD voltage input
79,80	V2,1		Power supply terminal

● **Pin Functions (PE5203A)**

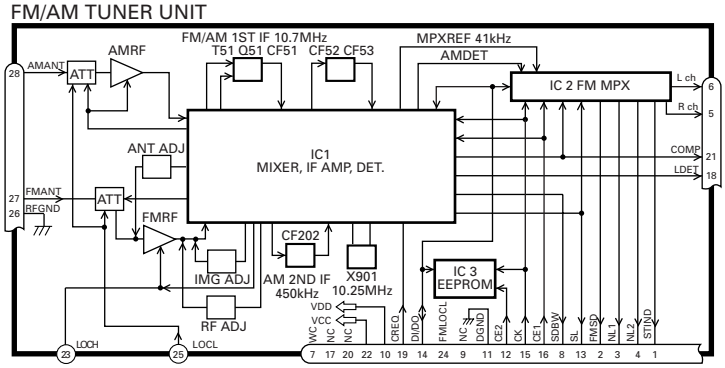
Pin No.	Pin Name	I/O	Function and Operation
1	NC		Not used
2	$\overline{\text{DSENS}}$	I	Grille detach sense input
3	NC		Not used
4	EJECTIN	I	Eject sense input
5	TESTIN	I	Test program mode input
6	LCDPW	O	LCD back light power supply control output
7	TELIN	I	Telephone mute input
8	$\overline{\text{ISENS}}$	I	Illumination sense input
9	FLPILM	O	Flap illumination input
10	DALMON		For consumption low-current
11	$\overline{\text{RESET}}$	I	Reset input
12	NC		Not used
13	XT1		Clock connection pin
14	VSS(GND)		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Regulator operation specification signal
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	$\overline{\text{ADPW}}$	O	A/D converter power supply control output
23	SWVDD	O	Grille:Chip enable output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ROT1	I	Rotary input 1
26	ROMDATA	O	ROM collection data output
27,28	NC		Not used
29	ROT0	I	Rotary input 0
30,31	NC		Not used
32	$\overline{\text{PCE}}$2	O	EEPROM chip enable output
33	STB	O	Strobe pulse output for electronic volume
34	CLK	O	Clock output for electronic volume
35	DATA	O	Data output for electronic volume
36	NC		Not used
37	MUTE	O	System mute output
38	SD	I	Station detector input
39	ST	I	FM stereo input
40	VSS(GND)		GND
41	VDD		Power supply
42-49	NC		Not used
50	LOCL	O	Local L output
51	LOCH	O	Local H output
52	NC		Not used
53	EJECT	O	CD:Load motor eject output
54	LOCK	I	CD:Disc spindle lock input
55	CD5VON	O	CD:+5V power supply control output
56	$\overline{\text{CLAMP}}$	I	CD:Disc clamp input
57	VDCONT	O	CD:VD power control output
58	NC		Not used
59	FOK	I	CD:Focus OK signal input
60,61	NC		Not used
62	PCL		Clock adjustment
63	CONT	O	CD:Servo driver power supply control output
64	CDLOAD	O	CD:LOAD motor loading control output
65	$\overline{\text{XSCK}}$	O	CD:LSI clock output
66	XSI	I	CD:LSI data input
67	XSO	O	CD:LSI data output
68	XA0	O	CD:LSI command / data control output

Pin No.	Pin Name	I/O	Function and Operation
69	$\overline{\text{XRST}}$	O	CD:LSI reset control output
70	$\overline{\text{XSTB}}$	O	CD:LSI strobe output
71	ASENBO	O	IP-BUS:Slave power supply control output
72	MUTE	O	E.VOL:Mute control output
73	TEST(GND)	I	GND
74	SL	I	TUNER:Signal level input
75	NC		Not used
76	MODELIN	I	Model select input
77	CSENS	I	Flap close sense input
78-80	NC		Not used
81	TEMP	I	CD:Temperature sense input
82	AVDD		A/D converter power supply terminal
83	AVREF		A/D converter reference voltage terminal
84	AVSS		GND
85	RX	I	IP-BUS:data input
86	TX	O	IP-BUS:data output
87	NMI		GND
88-91	NC		Not used
92	$\overline{\text{ASENS}}$	I	ACC power sense input
93	$\overline{\text{BSENS}}$	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Grille data input
96	DPDT	O	Grille data output
97	PCK	O	PLL IC clock output
98	PDO	O	PLL IC data output
99	PCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

*PE5203A



FM/AM TUNER UNIT

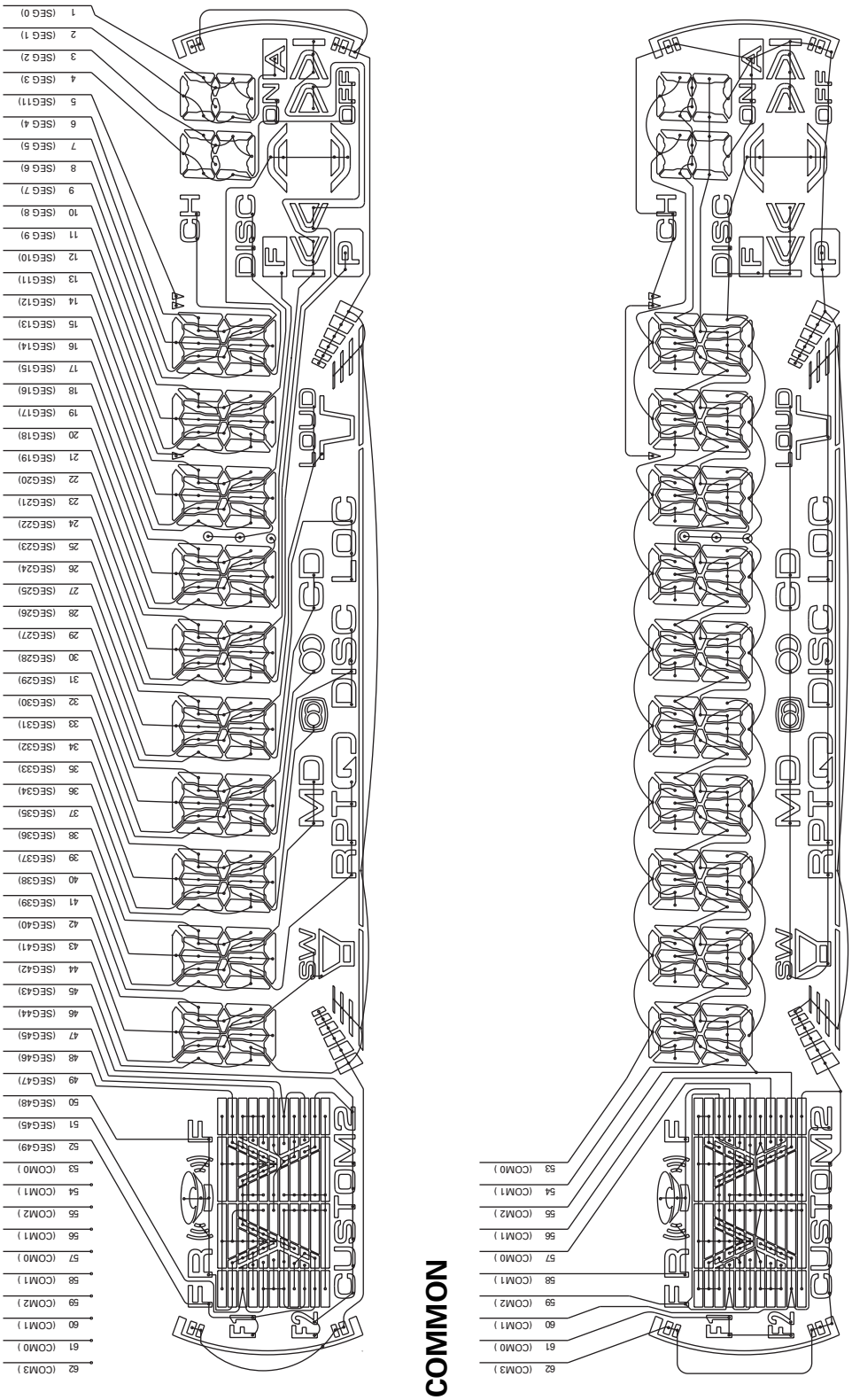


● Pin Functions

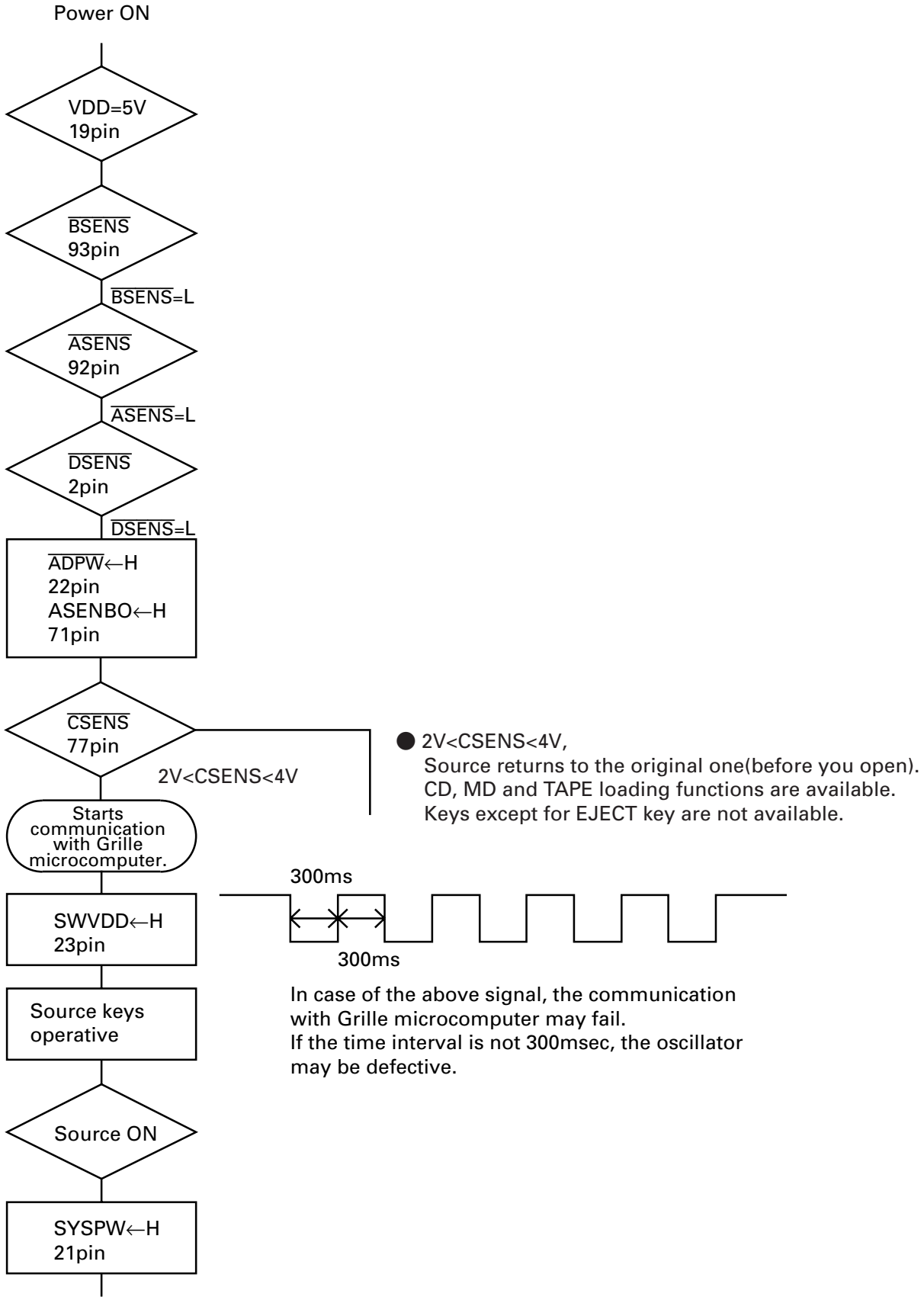
No.	Symbol	I/O	Explain	
1	STIND	O	stereo indicator	"Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector	"High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from here and "High: 0.9VDD or more" and "Low: 250mV or less". (Should satisfy the diver IC specifications)
3	NL1	O	noise level-1	"High" when noise is received. Output for the RDS. GND at 47kΩ //1,800pF.
4	NL2	O	noise level-2	"High" when noise is received. Output for the RDS. GND at 36kΩ //330pF.
5	Rch	O	R channel output	FM stereo "R-ch" signal output or AM audio output. Add the specified di-emphasis constant.
6	Lch	O	L channel output	FM stereo "L-ch" signal output or AM audio output. Add the specified di-emphasis constant.
7	WC		write control	EEPROM write control. Writing permissible at "Low". Normally open.
8	SDBW	O	SD bandwidth	SD bandwidth signal output. For detection of detuning data for the RDS.
9	NC			Not used
10	VDD		power supply	Power supply pin for the digital section. D.C. 5V +/- 0.25V. Be careful about overlapping noise in the logic section.
11	DGND		digital ground	Grounding for the digital section.
12	CE2	I	chip enable-2	EEPROM chip enable. Active a "Low" To be pulled up to the "VDD" at 47kΩ
13	SL	I/O	signal level	Received FM/AM signal level (strength) output. Connect the specified load resistor and capacitor (10k Ω + 39k Ω //4,700pF)
14	DI/DO	I/O	data input/ data output	Data input/Data output To be pulled up to the "VDD" at 47kΩ
15	CK	I	clock	Clock input To be pulled up to the "VDD" at 47kΩ
16	CE1	I	chip enable-1	AF·RF chip enable. Active at "High" To be grounded at 47kΩ
17	NC			Not used
18	LDET	O	lock detector	Active at "Low". To be pulled up to the "VDD" at 47kΩ
19	CREQ	I	current request	Active at "Low". To be grounded at 47kΩ
20	NC			Not used
21	COMP	O	composite signal	FM composite signal output. r out < 100Ω
22	VCC		power supply	Analog section power supply pin.D.C.8.4V +/- 0.3V
23	LOCH	I	local high	FM local high pin. When seeking local high, apply 5V together with "LOCL".
24	FMLOCL	I	FM local low	FM local low pin. When seeking local low, apply 5V to the base of the NPN transistor with which the specified resistor is being connected to the emitter. Keep it open in case of ordinary marketed models.
25	LOCL	I	local low	FM/AM local low pin. When seeking local low, apply 5V to the base of the NPN transistor. Since this pin is exclusive for AM when the FMLOCL is in use, do not drive it under FM.
26	RFGND		RF ground	Grounding for the antenna section.
27	FMANT	I	FM antenna input	FM antenna input. 75Ω. Serge absorber (DSP-201M-S00B) is necessary.
28	AMANT	I	AM antenna input	AM antenna input. High impedance. Connect to the antenna through an L (LAU type) of 4.7μH.To cope with the power transmission line hums, insert a series circuit consisting of an L (a coil of about 100mH) + R (a resistor of 470 Ω to 2.2kΩ) between the GND.

7.2.2 DISPLAY

● **CAW1626(DEH-P4350/X1N/ES), CAW1628(DEH-P3350/X1N/ES), CAW1679(DEH-P3350B/X1N/ES)**



7.3 OPERATIONAL FLOW CHART



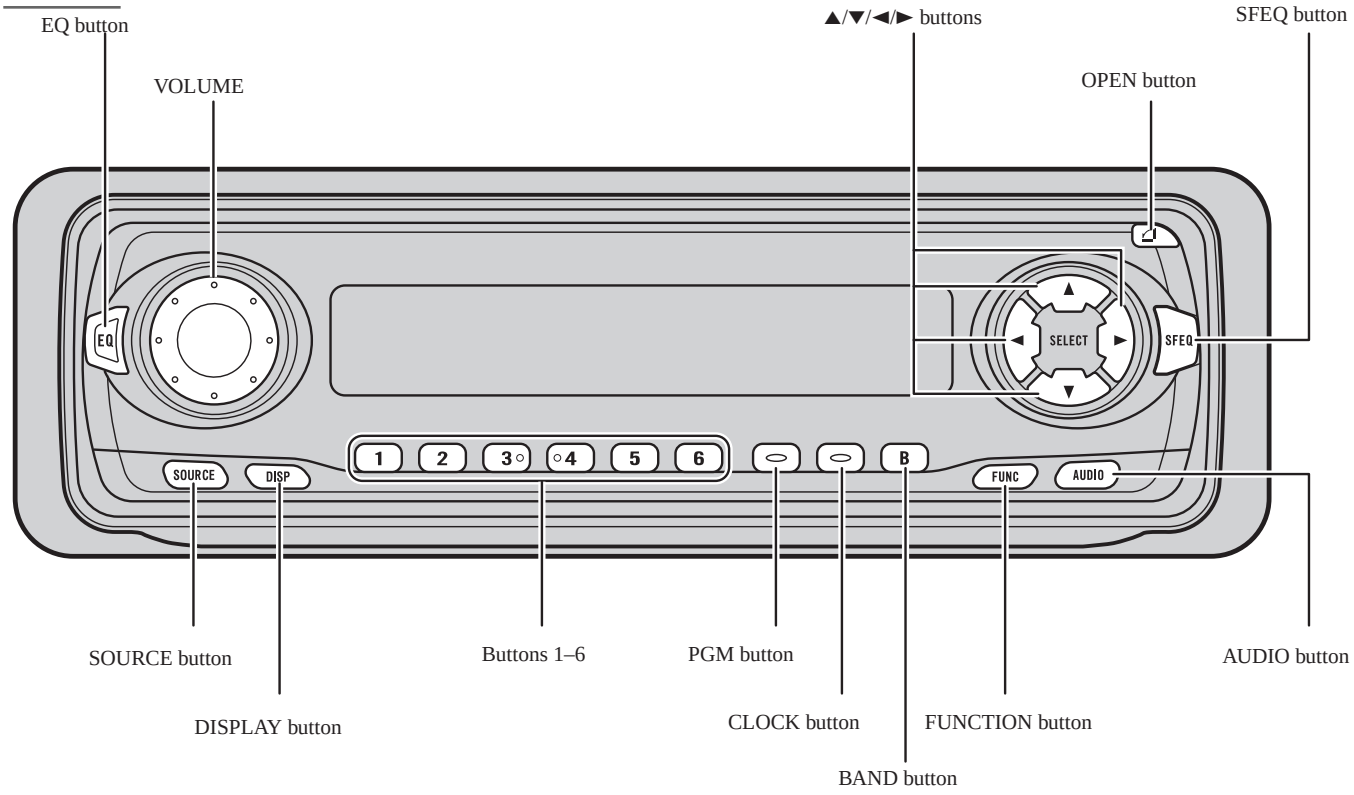
Completes power-on operation.
(After that, proceed to each source operation)

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

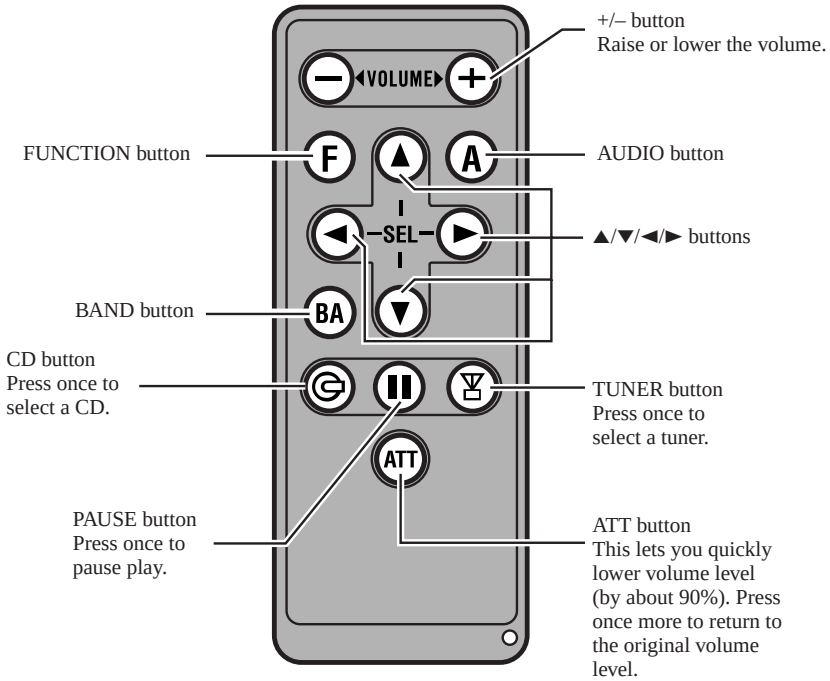
Key Finder

Head Unit



Remote Controller (DEH-P4350)

DEH-P4350 is equipped with a remote controller for convenient operation. Operation is the same as when using buttons on the head unit.

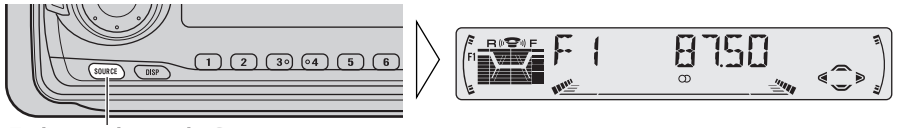


To Listen to Music

The following explains the initial operations required before you can listen to music.

Note:
- Loading a disc in this product.

1. Select the desired source. (e.g. Tuner)



Each press changes the Source ...

■ Head Unit

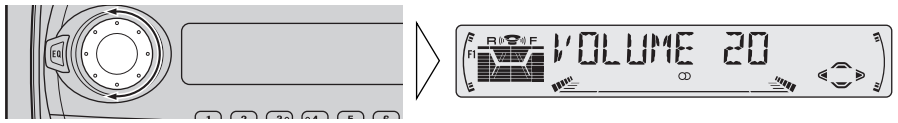
Each press of the SOURCE button selects the desired source in the following order:
Built-in CD player → TV → Tuner → Multi-CD player → External Unit → AUX

■ Remote Controller (DEH-P4350)

Each press of the button selects the desired source in the following order:
TUNER button : TV → Tuner → OFF
CD button : Built-in CD player → Multi-CD player → OFF

Note:
- External Unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Only one External Unit can be controlled by this product.
- In the following cases, the sound source will not change:
  * When a product corresponding to each source is not connected to this product.
  * When no disc is set in this product.
  * When no magazine is set in the Multi-CD player.
  * When the AUX (external input) is set to OFF.
- When this product's blue/white lead is connected to the car's Auto-antenna relay control terminal, the car's Auto-antenna extends when this product's source is switched ON. To retract the antenna, switch the source OFF.

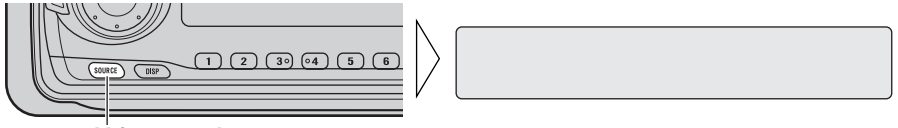
2. Raise or lower the volume.



Rolling the VOLUME changes the volume level.

Note:
- Roll clockwise to raise the volume level.
- Roll counterclockwise to lower the volume level.

3. Turn the source OFF.



Hold for 1 second

Basic Operation of Tuner

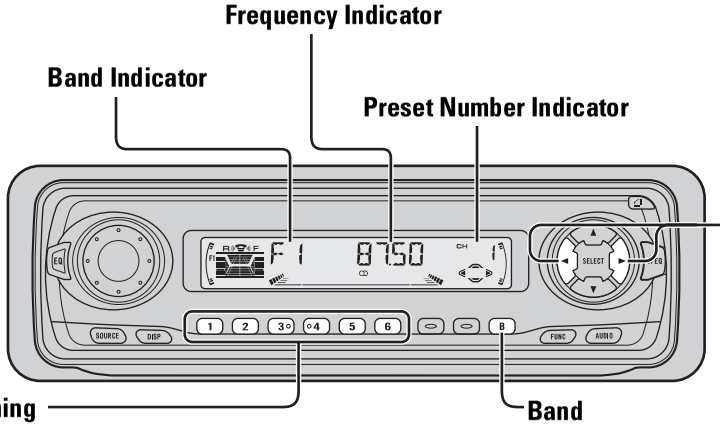
Reset the AM tuning step from 9 kHz (the factory preset step) to 10 kHz when using the tuner in North, Central or South America.

Manual and Seek Tuning

- **You can select the tuning method by changing the length of time you press the ◄/► button.**

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

Note:
- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcasting stations. Seek Tuning starts as soon as you release the button.
- Stereo indicator "◯◯" lights when a stereo station is selected.



F1 (FM1) → F2 (FM2) → F3 (FM3) → AM

- **You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.**

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:
- Up to 18 FM stations (6 in F1 (FM1), F2 (FM2) and F3 (FM3)) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

Basic Operation of Built-in CD Player

Note:
- Be sure to close the front panel after loading or ejecting a disc.

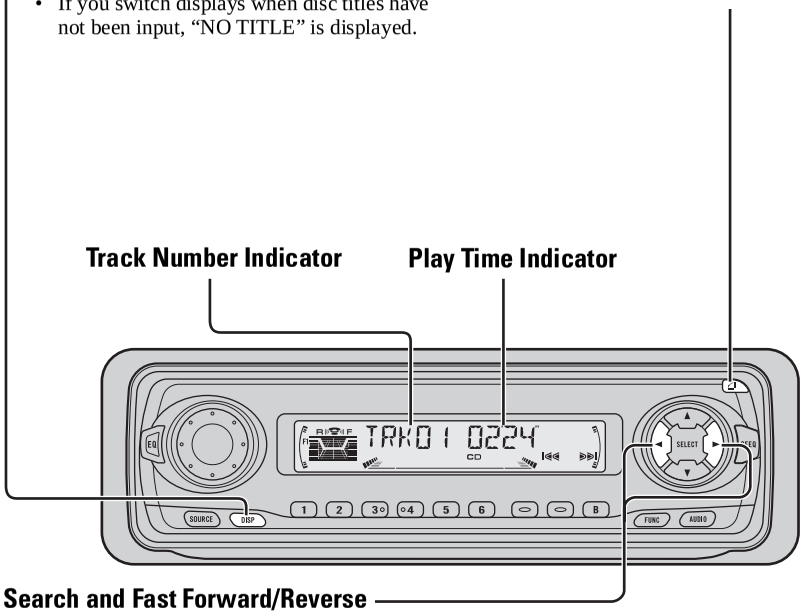
Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Play time)
→ Disc Title

Note:
- If you switch displays when disc titles have not been input, “NO TITLE” is displayed.

Open

Note:
- Use to open the front panel when loading or ejecting a CD. (The illustration on the right shows the front panel open.)

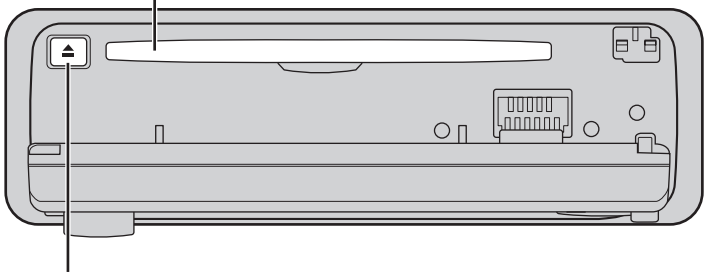


- **You can select between Track Search or Fast Forward/Reverse by pressing the ◄/► button for a different length of time.**

Track Search	0.5 seconds or less
Fast Forward/Reverse	Continue pressing

CD Loading Slot

Note:
- The Built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.
- Do not insert anything other than a CD into the CD Loading Slot.



Note:
- The CD function can be turned ON/OFF with the disc remaining in this product.
- A disc left partially inserted after ejection may incur damage or fall out.

Note:
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down. Press the EJECT button and check the disc for damage before reinserting it.
- If the Built-in CD player cannot operate properly, an error message (such as “ERROR-14”) appears on the display.
- The Built-in CD player is not equipped with CD TEXT function.
- A CD TEXT disc is a CD featuring recorded text information such as Disc Title, Artist Name and Track Title.

Basic Operation

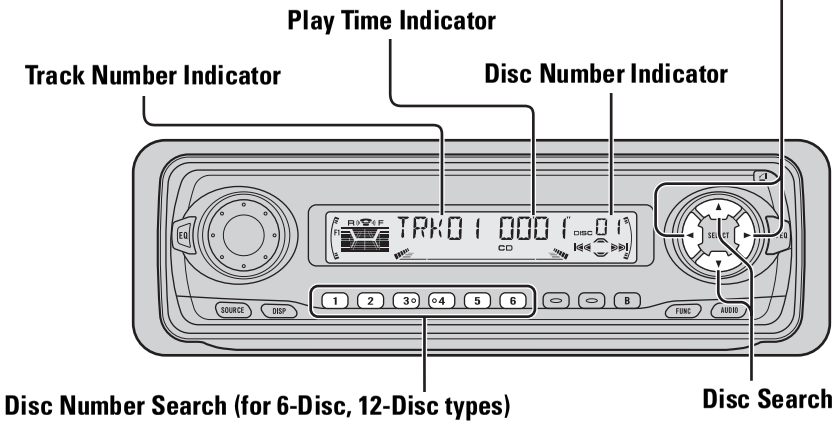
Basic Operation of Multi-CD Player

This product can control a Multi-CD player (sold separately).

Track Search and Fast Forward/Reverse

- **You can select between Track Search or Fast Forward/Reverse by pressing the ◄/► button for a different length of time.**

Track Search	0.5 seconds or less
Fast Forward/Reverse	Continue pressing



- **You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.**

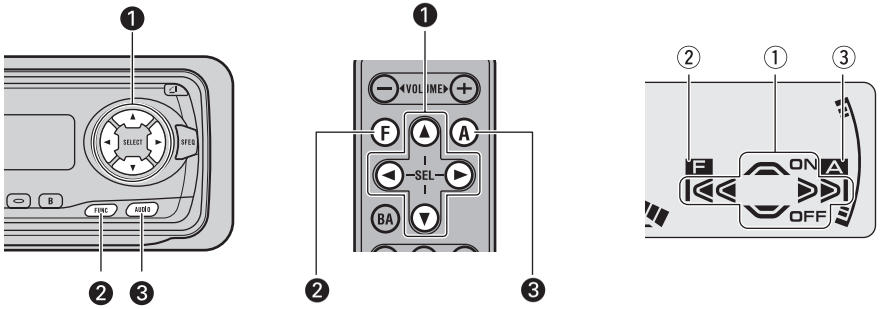
Note:
- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds.

Note:
- The Multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. “READY” is displayed.
- If the Multi-CD player cannot operate properly, an error message such as “ERROR-14” is displayed. Refer to the Multi-CD player owner’s manual.
- If there are no discs in the Multi-CD player magazine, “NO DISC” is displayed.

Corresponding Display Indications and Buttons

This product’s display features Key Guidance Indicators. These light to indicate which of the ▲/▼/◄/►, FUNCTION and AUDIO buttons you can use. When you’re in the Function Menu , Detailed Setting Menu , Initial Setting Menu or Audio Menu , they also make it easy to see which ▲/▼/◄/► buttons you can use to switch functions ON/OFF, switch repeat selections and perform other operations.
Indicator and corresponding buttons are shown below.

■ Head Unit **■ Remote Controller** **■ Display**



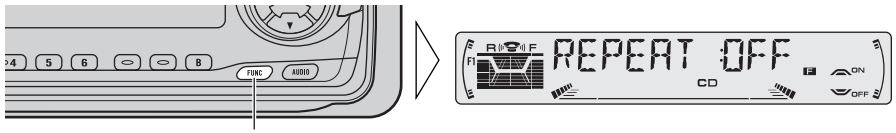
When ① is lit in the display, perform appropriate operations with the ❶ buttons.
When ② is lit in the display, it indicates that you are in the Function Menu, Detailed Setting Menu or Initial Setting Menu. You can switch between each of these menus and between different modes in the menus using button ❷ on the head unit or remote controller.
When ③ is lit in the display, it indicates you are in the Audio Menu. You can switch between modes in the Audio Menu using button ❸ on the head unit or remote controller.

Entering the Function Menu

The Function Menu lets you operate simple functions for each source.

Note:
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

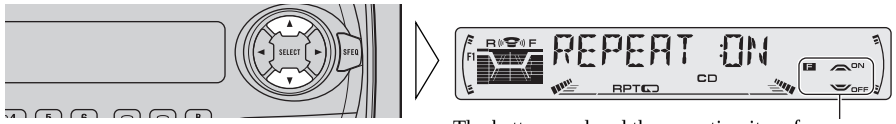
1. Select the desired mode in the Function Menu.



Each press changes the Mode ...

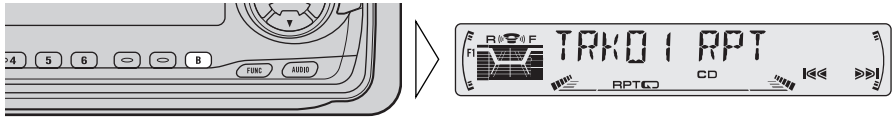
Continued overleaf.

2. Operate a mode. (e.g. Repeat Play)



The button used and the operation it performs are indicated by the key guidance indicator. Press the ▲ button to switch the key guidance indicator ON, and the ▼ button to switch it OFF.

3. Cancel the Function Menu.



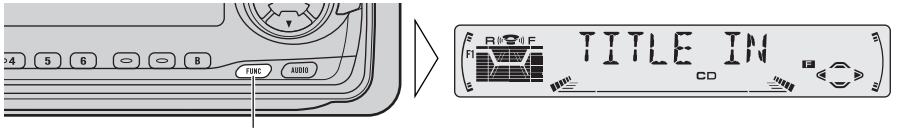
Function Menu Functions

The following chart shows functions for each source in the Function Menu. The chart also shows indications for each function, operations and buttons used to perform operations.

Entering the Detailed Setting Menu

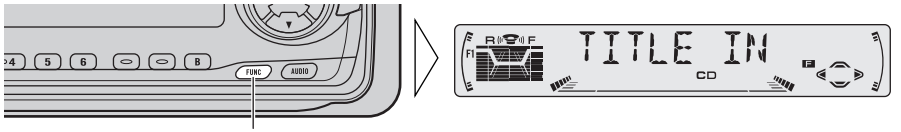
In the Detailed Setting Menu, you can operate convenient, complex functions for each source.

1. Enter the Detailed Setting Menu.



Hold for 2 seconds

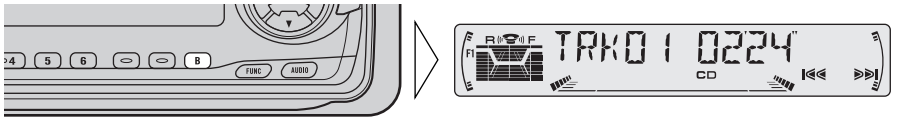
2. Select the desired mode.



Each press changes the Mode ...

3. Operate a mode.

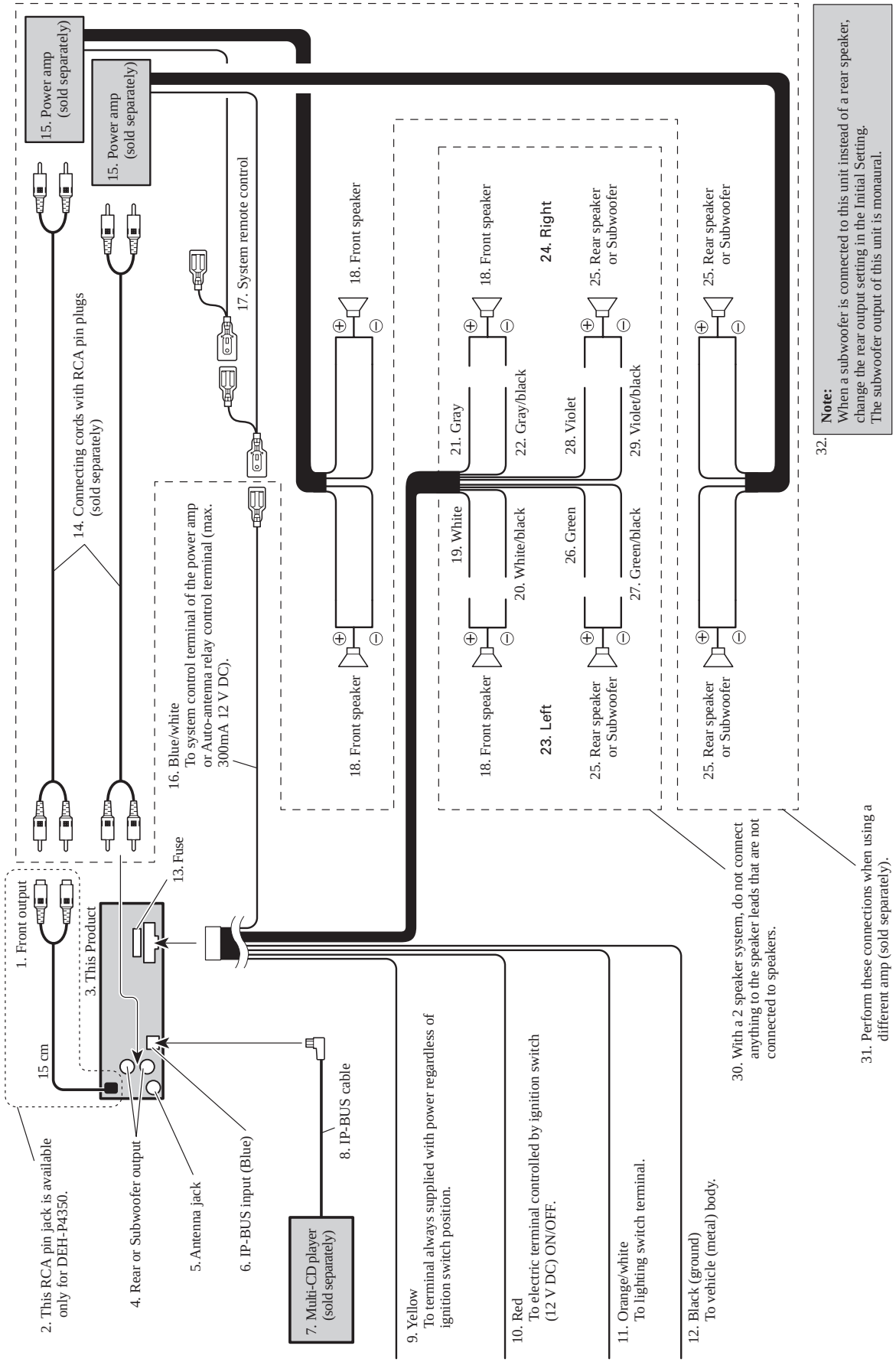
4. Cancel the Detailed Setting Menu.



Note:

- You can cancel the Detailed Setting Menu by pressing the FUNCTION button again for 2 seconds.

● CONNECTION DIAGRAM



8.2 SPECIFICATIONS

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Dimensions
(DIN) (chassis) ..... 178 (W) × 50 (H) × 157 (D) mm
(nose) ..... 188 (W) × 58 (H) × 19 (D) mm
(D) (chassis) ..... 178 (W) × 50 (H) × 162 (D) mm
(nose) ..... 170 (W) × 46 (H) × 14 (D) mm
Weight ..... 1.5 kg
Backup current 5mA

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 50 W × 4
50 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)
Load impedance
..... 4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout maximum output level/
output impedance ..... 2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer)
(Low) ..... Frequency: 40/80/100/160 Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(Mid) ..... Frequency: 200/500/1k/2k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
(High) ..... Frequency: 3.15k/8k/10k/12.5k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB
Loudness contour
(Low) ..... +3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid) ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
(High) ..... +11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)
Tone controls
(Bass) ..... Frequency: 40/63/100/160 Hz
Level: ±12 dB
(Treble) ..... Frequency: 2.5k/4k/6.3k/10k Hz
Level: ±12 dB
Subwoofer output
Frequency ..... 50/80/125 Hz
Slope ..... –12 dB/oct.
Gain ..... ±12 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.5 – 108 MHz
Usable sensitivity ..... 9 dBf
(0.8 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 15 dBf
(1.5 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 531 – 1,602 kHz (9 kHz)
530 – 1,640 kHz (10 kHz)
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)
50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.